A Semantic Study

of

Spatial and Temporal Expressions

in

English

(VOLUME II)

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VII
A LOCALIST INTERPRETATION OF PROPOSITION TYPES

7.1 An informal characterization of a journey

Our first task in this chapter will be to develop a rough and rather informal description of the meanings of such sentences as those below, all of which describe, in an intuitively obvious way,

1. John walked from the school to the swimming pool
2. The ball rolled from Winifred to Allan
3. We drove from London to Edinburgh

a (concrete) journey of some sort. Abstracting away the different kinds of locomotion involved, sentences 1. to 3. are all of the general form given in 4., where each of A, B, and C can be regarded

4. A moved from B to C

as points. For the time being, we will restrict our attention to this schematized sentence type.

In this first approximation to an explicit characterization of a journey, we will introduce only one new relational element to those we made use of in Chapter 3. More specifically, in addition to the constructs of direct location and order (polarized and unpolarized), the general form of which is given in 5., 6 and 7., respectively (Y and Z stand for locations, X for an object), we will

5. X loc Y (e.g. 'X is at Y')
6. $Y < L(X) < Z$ (e.g. 'X is ahead of Y and behind Z')
7. Y ord L(X) and Z (e.g. 'X is between Y and Z')

provisionally accept the notion of 'directed movement', i.e. movement in a direction away from some place and towards another, as the

dynamic counterpart of polarized spatial order. This we will represent as in 8. The static and dynamic relations are related

8. $Y \rightarrow L(X) \rightarrow Z$ (e.g. 'X approaches Z and moves further away from Y')

by the following rule of implication:

9. $Y \rightarrow L(X) \rightarrow Z \supset Y < L(X) < Z$

That is, if X is moving toward Z and away from Y, then X is behind Z and ahead of Y. However, it is not necessary that Z, for example, be a non-variable location: it may be the changing location of another object, as for example in the situation described by sentence 10. However, we shall assume in the following

10. Zeke chased Mabel around the yard

discussion that Y and Z in 8. are non-variable locations.

Although one of our ultimate aims will be to give a semantic account of the verbs of aktionsarten - e.g. 'begin', 'stop', 'finish' and 'continue' - and of progressive aspect, let us for now use these linguistic devices simply as tools for uncovering the logical structure of sentences of the form 'A moves from B to C'. Consider, for example, the sentences below, all of which are analytic:

11. As A began to move from B to C, A ceased to be at B

12. As A began to move from B to C, A began to move towards C (and away from B)

13. While A {continued to move / was moving} from B to C, A {continued / was moving to move} towards C (and away from B)

14. As A finished moving from B to C, A came to be at C

15. When A had stopped moving from B to C, A was either at C or between B and C

What these sentences reveal is that the semantic representation of 4. will involve at least three components: an initial locational relation, a final locational relation and a component of directed movement. Letting linear ordering reflect, for now, the implicit temporal order, we can represent the compositional structure underlying 4. as follows:

16. A loc B & B $\rightarrow$ L(A) $\rightarrow$ C & A loc C

That is, A is at B and then A moves (away from B and) toward C and then A is at C. Recalling the implicational relationship between directed movement and polarized order formulated in 9., we have, in addition to 13. above, the analytic sentence in 17. Or, since the

17. While A was moving from B to C, A had C ahead of it and B behind it

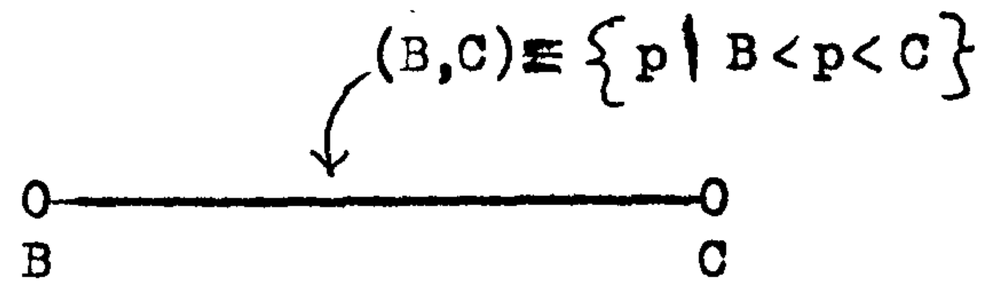
static polarized ordering relation implies an unpolarized one, we also have the analytic sentence in 18.

18. While A was moving from B to C, A was between B and C

Thus, not only do we have an initial and final locational relation involved in the situation described by 4. but also, by implication, an intermediary one. If we represent B and C as points, then the set of intermediate point-locations of A can be represented as the open interval (B,C) (i.e. the end-points are excluded).

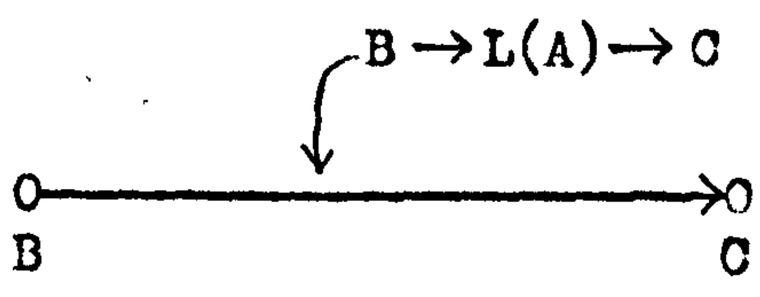
This, roughly speaking, is A's 'path' in going from B to C. Thus, the initial location, the path and the final location can be schematized as in Figure I. If we let an arrow represent the

Figure I



component of directed movement of A towards C, this can be superimposed upon the set of locations (B,C) to give a simple, graphic representation of A's journey from B to C--cf. Figure II.

Figure II



A more perspicuous mode of diagramming such a journey is perhaps that below, where the boxes stand not for actual locations

FIGURE III

A loc B	A loc INT((B,C)) & B → L(A) → C	A loc C

but rather for the locational and directional relations into which A enters throughout the course of its journey. Although Figure III

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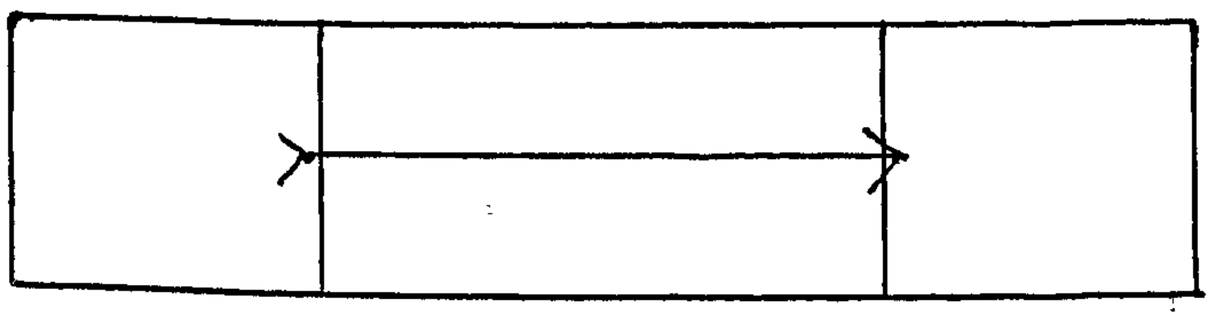
[1] The formula A loc INT ((B,C)) stands for "A is located in the interval (B,C)"-i.e. A's direct location is a member of the set of points in (B,C).

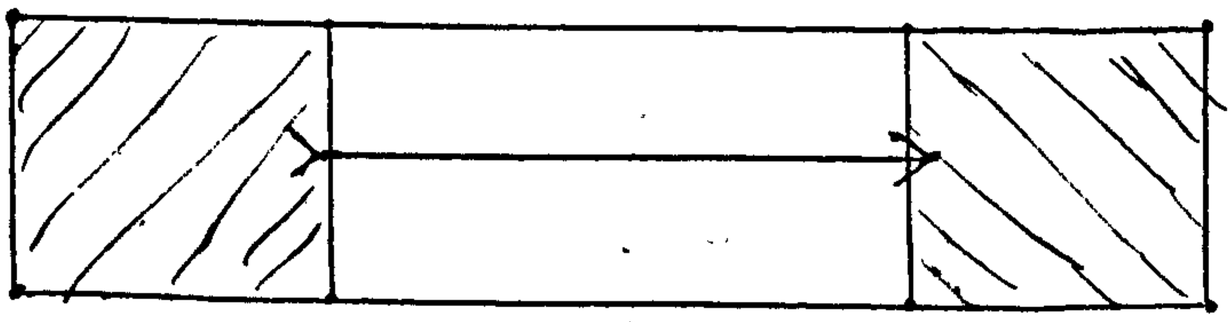
begs several important questions, let us continue for the moment to grant it an intuitive validity in order to discuss informally some variations within such a general schema. However, for convenience, we will revert to representing the component of directed movement by an arrow. Hence Figure IV will be our starting point.

Figure IV



In sentences 1. to 3. the initial and final locations of A are specified and given overt linguistic encodings by means of the prepositional phrases 'from...' and 'to...', respectively. In Bennett's (1972) framework, following Fillmore (1968), these are described as source and goal expressions (cf. §2.4) and, in Anderson's (1971b) grammar, as expressions of ablative and allative case relations, respectively. We shall be returning shortly to a discussion of the semantics of such expressions--first in their static and then dynamic uses--but for now let us graphically represent the fact that the initial and final locations are given individual linguistic expression by shading these in as in Figure V.

Figure V



If we now consider the sentences in 19. to 22., we find that

19. The ferry crossed the Channel

20. The window-cleaner climbed the ladder

21. Martha jumped the puddle

22. Paul sprinted the { stretch / distance } between the last hurdle and the { tape / finish (line) }

there is an alternative way of encoding a journey still of the general form in Figure IV, namely, by specifying the intermediate locational relation or, more accurately, by specifying what occupies the space between the initial and final locations of A. This is most transparent in sentence 22. All of these sentences can be paraphrased by structures fitting the schema in 4.--cf. 23. to 26.

23. The ferry sailed from one side of the Channel to the other

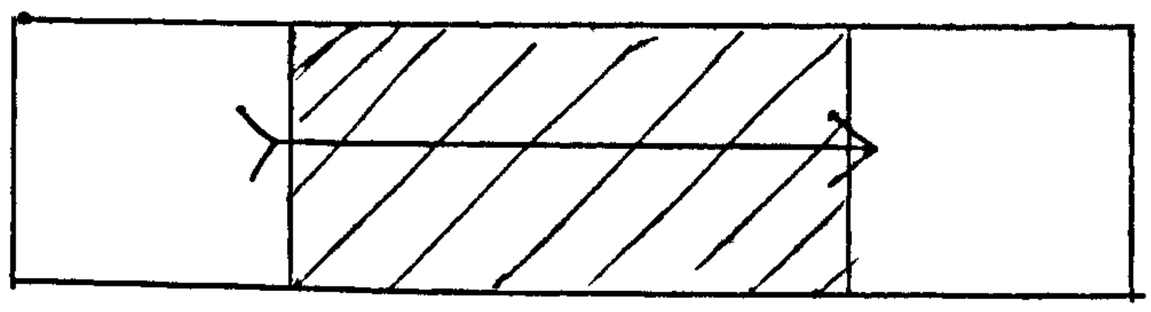
24. The window-cleaner climbed from the bottom to the top of the ladder

25. Martha jumped from one side of the puddle to the other

26. Paul sprinted from one end to the other of the stretch between the last hurdle and the finish line

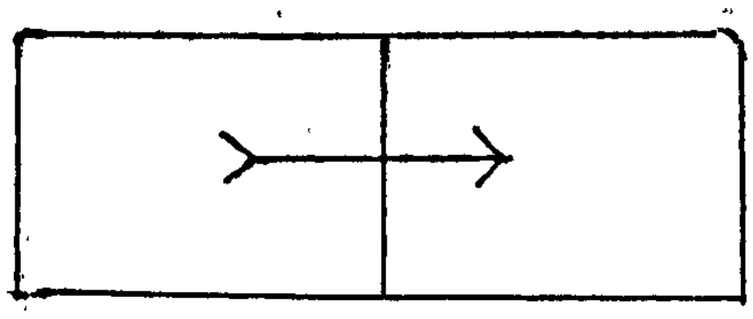
In these the specification of the initial and final locations is seen to be completely in terms of opposing extremities of some object which contains or defines the path (B,C) of A's journey. We shall represent this difference in linguistic encoding by shading in the box corresponding to the intermediate locational relation, as in Figure VI.

Figure VI



Let us now consider the possibility of the intermediate space between B and C in Figure I becoming increasingly smaller until one eventually reaches the limiting case where B and C are contiguous locations ($(B,C) \equiv \{ p \mid B < p < C \} \equiv \emptyset$). In such a case, Figure VI reduces to Figure VII. This is the type of journey

Figure VII



encoded by 27. and 28. For obvious reasons we will call this

27. The aeroplane flew across the French-Italian border

28. Paul crossed the finish line

special case of a journey a 'border-crossing'. The fact that there is no intermediate locational relation in border crossings is reflected by a decrease in the co-occurrence potential of the verbs of aktionsarten--cf. 29. to 32. Although simple co-occurrence with

29. The aeroplane began to cross the {Atlantic / ?*county border} [1]

30. The aeroplane continued to cross the {Atlantic / *county border}

31. The aeroplane stopped crossing the {Atlantic / *county border}

32. The aeroplane finished crossing the {Atlantic / *county border}

progressive aspect is not affected, it is not possible to have constructions such as in 13., i.e. progressive aspect plus a durational adverbial--cf. 33.

33. All the while Paul was running across the {field / *finish line}
his legs felt like rubber

Border-crossings, like the extended journeys (i.e. those with an intermediate locational relation), can also have linguistic encodings whereby the initial and final locations of A are specified

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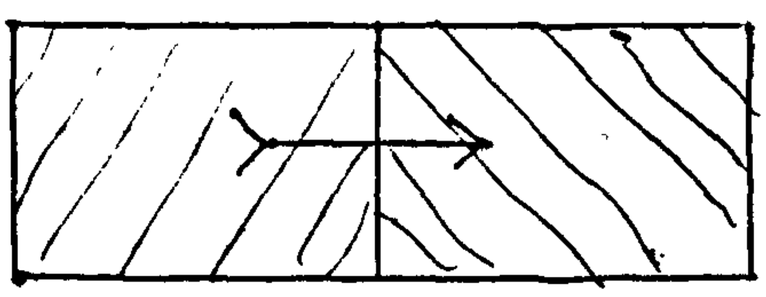
[1] There are, of course, imaginable situations which this sentence could appropriately describe. For example, suppose the plane was slowly taxi-ing down the runway, across which runs the county border. We shall be considering such complications in §7.6 which have to do both with the nature of the object which is moving and the speed with which it is moving. (For example, sentence 33. might be plausible if one were watching slow-motion film.) In addition, all of 29. to 32., including the starred variants, are appropriate under a habitual interpretation--cf. fn. 1, p. 227.

rather than the border separating the two. This is the case in 34., which can be represented as in Figure VIII.

34. Egor crossed from France into Italy

Figure VIII

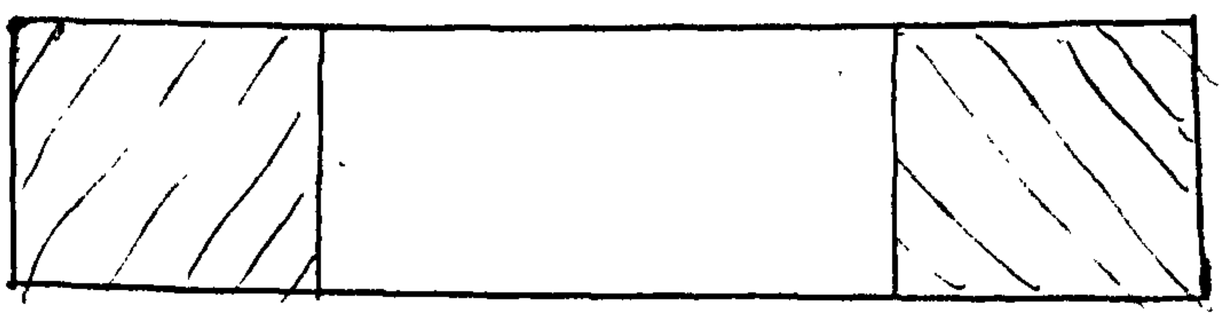


Let us return now to the basic extended journey with initial and final locational relations specified, as depicted in Figure V, and consider the possibility of focussing on only one stage or phase of it. Trivially, of course, we have the case where no movement is being described: we have only two locational relations which, in isolation carry no implication of a journey and which together imply but do not assert such a movement, as in 35. This can

35. John was in London and (then) John was in Edinburgh

be diagrammed simply as Figure IX. More interesting are the phases

Figure IX



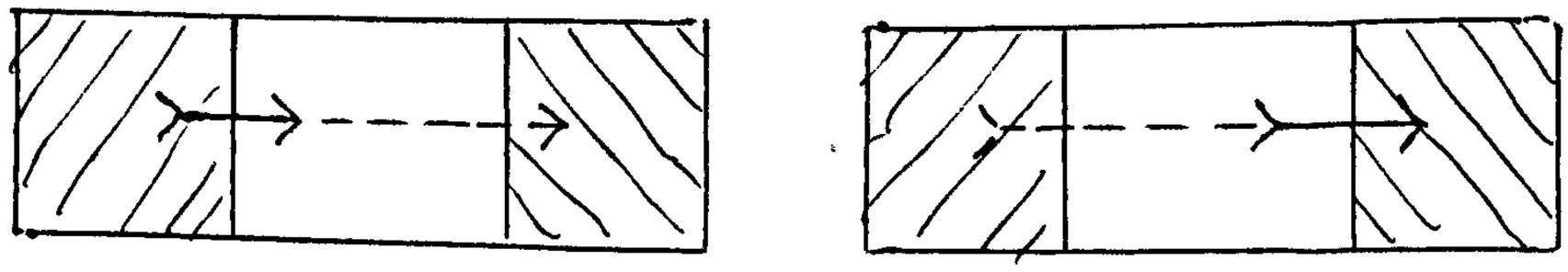
of an extended journey as described by sentences 36. and 37. The partial journeys identified here are particular cases of border-crossings:

36. Manfred left Tarbert (for Stornoway)

37. Manfred reached Stornoway (from Tarbert)

the fact that the (intended) final location in the case of 36. and the initial location in the case of 37. are specified makes it explicit that each is but one stage of an extended journey. They can be represented as in Figure X. What is, in fact, being

Figure X



a. b.

encoded in these two instances is the inception and termination of the whole journey described in 38., and acceptable paraphrases of

38. Manfred went from Tarbert to Stonnoway

36. and 37. would be 39. and 40., respectively (assuming that

39. Manfred began {his journey / going} from Tarbert to Stornoway

40. Manfred finished {his journey / going} from Tarbert to Stornoway

Tarbert, at least, is regarded as a point--i.e. the situation is more complex if the initial locational relation is one of inclusion within an area or volume--cf. for example, 41.). Thus, in certain contexts

41. Manfred began his journey from Paris to London but he hadn't {left / got out of} Paris before his car broke down

at least 'A leave B' and 'A reach C' lexicalize the inception and termination, respectively, of 'A move from B to C'. If we look at our graphic representation of border-crossings (Figures VII and VIII), we can now see pictorially why it is impossible to focus upon an

inceptive or terminative phase of such journeys (cf. 29. and 32.): there is only one phase, namely the transition between the two locations; and this is simultaneously both the inception and the termination of the journey. We may also note that if instead of 36. and 37. we consider 42. and 43., in which no final or initial

42. Manfred left Tarbert (forever)

43. A stranger arrived at the party

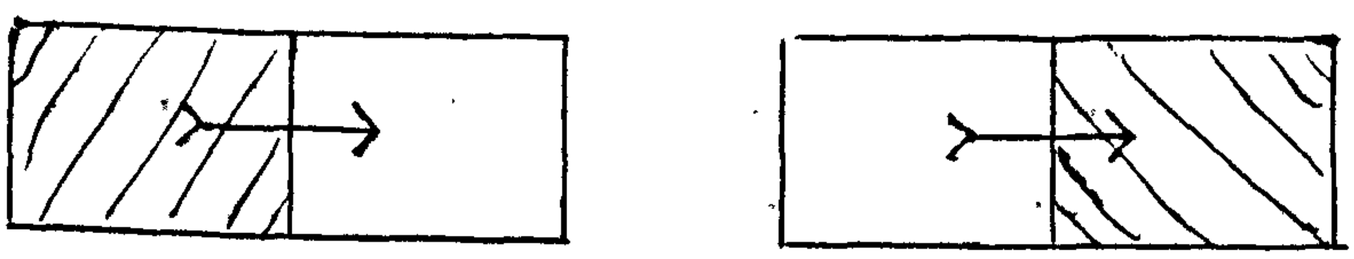
locational relation, respectively, is specified or retrievable from the context, then we once again have a simple border-crossing. In these cases one locational relation is fully specified (e.g. A loc B) and the other can be considered that with the complement location object (e.g. A loc $\overline{B}$). For example, in 42. we have as the initial locational relation that in 44., and as the final one that in 45.

44. Manfred was at/in Tarbert

45. Manfred was anywhere but in Tarbert

Such journeys as those in 42. and 43. are diagrammed in Figure XI.

Figure XI



a. b.

In such contexts as these 'leave' and 'arrive at' can be seen to lexicalize, respectively, the cessation and inception of a locational relation each of which can otherwise be syntagmatically realized as in 46. and 47.

46. Manfred ceased to be at Tarbert

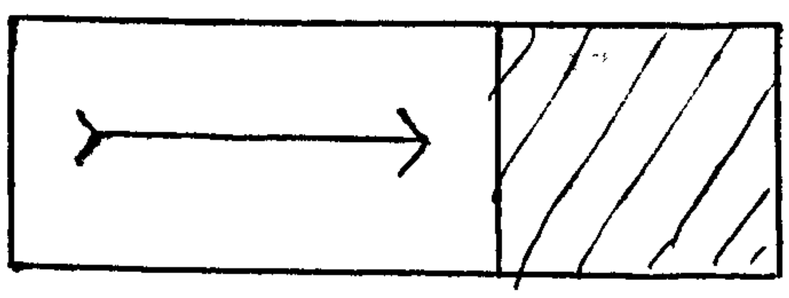
47. Manfred came to be at Stornoway

The last component of an extended journey which can be singled out pictorially is the dynamic vector representing directed movement. In 48. below, for example, we are not given the origin of the

48. Egor drove towards the house

movement nor whether the house was in fact reached or even intended to be reached: the house simply establishes the direction or orientation of the movement. This situation is depicted in Figure XII. If we now consider sentence 49., this might be expected to

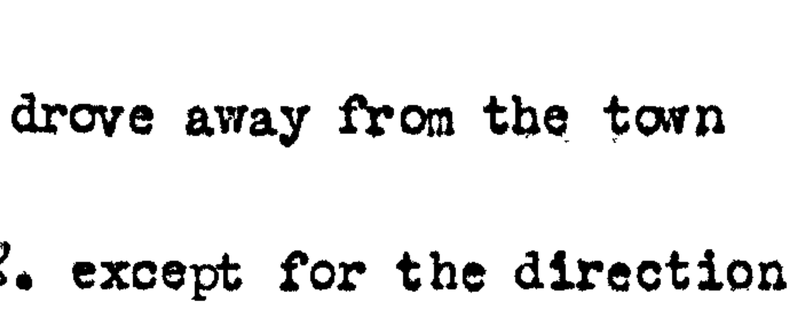
Figure XII



49. Egor drove away from the town

correspond to 48. except for the direction of the movement being specified negatively rather than positively, i.e. by the original location rather than by a possible final location. Such a situation would be that shown in Figure XIII. However, it appears that this is not the case since 49. implies 50. That is, in the case of

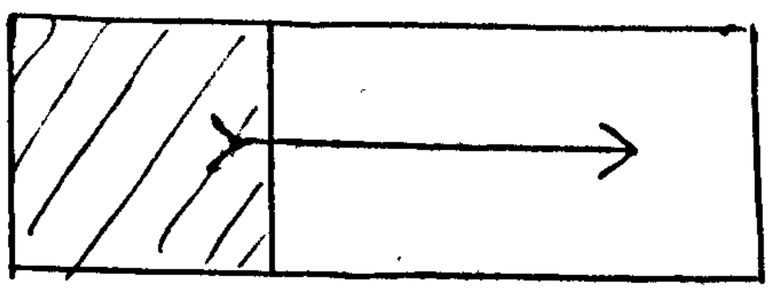
Figure XIII



50. Egor was at/in the town

'A moves away from B' there is the implication that the directed movement had its origin at B. Thus, as with the static uses of 'away from' and 'toward' (cf. § 3.4.3), we find an asymmetry in the use of these two expressions in describing directed movement. Since 49. implies a 'leave' component, its representation differs from Figure XIII in having the origin of the vector within the specified locational relation, and hence it includes the 'leave'

Figure XIV



element represented in Figure XI.a. The situation depicted in Figure XIII can nevertheless be described, albeit somewhat circuitiously, by sentences of the kind exemplified in 51. The expression

51. Igor drove further (and further) away from the barn

'move further (and further) away from' has, as we shall find, a logical structure very similar to that underlying 'move towards', which we have provisionally treated as an atomic relation.

This discrepancy between the semantic correlates of 'movement towards' and 'movement away from' should not be surprising since we tend to have a forward orientation in describing movement. Compare, in this respect Aristotle's remarks about the greater linguistic salience of the 'whither' compared to the 'whence' of a movement (§ 6.2.2). Furthermore, 'movement towards' is sufficient for our characterization of a journey since, in conjunction with the information that A is originally at B, movement of A towards C will

necessarily imply movement (further) away from B.

Pictorial representations are only useful up to a certain point, and the foregoing discussion has been intended as an illustrative rather than a rigorous account of the kinds of phenomena related to the notion of a journey to which we will be addressing ourselves in the following sections. One distinction which we have not so far been able to adequately represent in a graphical manner is that between the stopping and the finishing of a journey--cf. sentences 14. and 15. and, crucially, the entailments below.

52. A $\left\{\begin{array}{l}\text{finished moving from B to C}\\ \text{reached C (from B)}\end{array}\right\} \supset$

A stopped moving $\left\{\begin{array}{l}\text{from B to C}\\ \text{towards C}\end{array}\right\}$

53. A stopped moving $\left\{\begin{array}{l}\text{from B to C}\\ \text{towards C}\end{array}\right\} \not\supset$

A $\left\{\begin{array}{l}\text{finished moving from B to C}\\ \text{reached C (from B)}\end{array}\right\}$

Nor have we attempted to distinguish graphically between the simple ongoingness of a journey (i.e. the use of progressive aspect) and the continuing of a journey (i.e. the use of 'continue', 'go on' in the sense of 'not stop')--cf. 13. It will be more expedient to postpone a discussion of these distinctions until we have developed the rudiments of a descriptive framework.

The reader will of course be aware that an implicit, intuitive appeal has been made throughout the preceding discussion to the notion of temporal order or succession; and this in turn presupposes some notion of temporal location. What we have been representing by boxes linearly ordered on the page and by the arrow through them

will eventually have to be made explicit. This we shall attempt to do in §7.4 onwards. However, for the time being we will continue to treat the temporal dimension informally.

Before going on to explore less concrete manifestations of the spatial relations and constructs we have surveyed in this section, it will be useful to recapitulate our preliminary findings concerning the logical nature of journeys. What we have so far concluded is that five defining phases of a journey of the type 'A moves from B to C' can be isolated which, in their temporal order, are the following:

53. a. A loc B

b. transition from A loc B to A loc INT ((B,C))

c. B→L(A)→C

d. transition from A loc INT ((B,C)) to A loc C

e. A loc C

There are certain redundancies in 53. which we will be able to eliminate later on. Furthermore, we will also want to make more obvious the fact that b. is at the same time a part or phase of c., namely its inception and that d. not only is a part of c. but also requires its cessation. Finally, we have noted the intrinsic relationship--one of a 'cas limite'--of a border crossing to an extended journey, the former being simply a journey between contiguous locations, the latter one between non-contiguous locations. This relationship will also have to be made explicit. We simply observe at this time, however, that border-crossings, both those which are self-contained journeys (cf. 33) and those which are part

of an extended journey (cf. 37), fall into Vendler's class of achievements (or Streitberg's class of momentaneous perfective verbs) and extended journeys into his class of accomplishments (or Streitberg's class of duratively perfective verbs)--cf., for example, the typical co-occurrence patterns with expending, durational and point locational adverbials in 54. and 55. The fact that these two classes share some properties--and have not always

54. The ferry crossed the Channel { in fifty minutes / *for fifty minutes / *at 1:30 p.m.

55. Paul crossed the finish line { in ten minutes / *for ten minutes / at 3:05

been distinguished (cf. Kenny's performance verbs, Jespersen's conclusive verbs)--should hopefully be explicable in terms of this intrinsic relationship. As regards the locational relations and component of directed movement which enter into our characterization of a journey, we may note that the former fall into Vendler's class of states, the latter into his class of activities--cf. 56. and 57.

56. Manfred was (*being) at Tarbert { at noon / for a few minutes / ?in a few minutes

57. a. Fred drove towards the mountains { *at noon / for several hours / ?in a few hours

b. Fred was driving towards the mountains { at noon / for several hours / ?in a few hours

(The variants with the completion 'in a few minutes/hours' are acceptable with an inceptive interpretation--cf. fn. 1, p. 229.)

7.2 Abstract location and direction and abstract journeys

In our discussion of the localist hypothesis in Chapter 4. we observed that various kinds of syntactic and semantic arguments can and have been put forward in support of analyzing several sentence types as encoding abstract but nevertheless spatial relations. The abstract nature of such relations was seen to be dependent upon the semantic properties of the noun phrases involved--cf. the concrete and abstract locational relations expressed in 58. and 59.--as well as upon the semantic content of the associated

58. a. Polly is in the garden
    b. Polly is in the Army
    c. Polly is in a bad mood
59. a. Sam is in the jail
    b. Sam is in jail
    c. Sam is in trouble

verb--cf. the differing degrees of abstractness involved in the sentences in 60., all of which, in some sense, identify the location

60. a. The {box / book} contained the answer
    b. John had the answer {in his hand / in his head}
    c. John knew the answer

of the entity referred to by 'the answer'.

We do not wish to dwell on the details and motivations for localist analyses of such sentences: these are to be found in the references given in our discussion in § 4.2. What we would like to stress, however, is that the range of constructions which, it would

appear, can be accommodated within such a framework is much greater than the few examples given in chapter 4. Not only do affective and possessive constructions (cf. 60.b., c. above) lend themselves naturally to a description in terms of abstract location, but it has also been argued (cf. Anderson, 1971b, 1973c) that sentences with (contingent) predicate adjectives and nominals (i.e. those involving the attribution of qualities/properties and class membership)--cf. 61. and 62.--also display a locational

61. John is hungry

62. Fred is a policeman

structure. Furthermore, it is quite possible that equative structures and sentences with 'absolute' predicate adjectives or nominals--cf. 63. and 64.--are also amenable to a localist

63. John is the policeman

64. Fred is $\left\{\begin{matrix}\text{artistic}\\ \text{an artist}\end{matrix}\right.$

interpretation (cf., for example, Allan, 1970: I-17).

Looking now at indirect rather than direct locational structures, we find that parallel to such expressions as 'above'/'below' and 'ahead of'/'behind', which describe concrete spatial ordering relations, are constructions which involve the implicit or explicit 'grading' of qualities or properties possessed by more than one object. Implicit grading occurs, for example, when one term of an antonymous pair is predicated of the subject (cf. Sapir, 1949: 122; Lyons, 1968a: §10.4.4), as in 65. and 66., whereas explidit grading

65. The coffee is cold

66. Fred's wife is attractive

is usually encoded by comparative constructions of some kind, as in 67. and 68. However, it is quite probable that other spatial

67. The coffee is colder than the tea

68. Fred's wife is more attractive than Bill's

relations besides that of order may underly some comparative constructions (cf. our discussion in § 4.2 of 'convergence'/'divergence' and 'sociative'/'adversative' with respect to Small's (1920) 'spatial' analysis of the comparative).

Parallel to sentences describing the direction or orientation of static, concrete objects (cf. § 3.4), we have such abstract counterparts as those below (cf. the possessive, hence implicitly

69. a. The text book is oriented towards theory rather than description

b. The text book has a theoretical orientation

70. The magazine is aimed at the everyday housewife

71. These symptoms suggest T.B.

72. The results of the experiment point towards an interaction between the genotype and the environment

73. a. John leans toward communism

b. John has communist leanings

74. a. Fred tends toward fascism

b. Fred has fascist tendencies

75. a. Jim is inclined towards brunettes

b. Jim has an inclination towards brunettes

76. The government faces the possibility of an early election

locative, alternatives for some of these).

Although detailed and/or adequate analyses of the types of constructions surveyed above are lacking, any strong claims for their locational basis thus being premature, it nevertheless seems quite possible and plausible that the range of situation types usually included in the category of states--e.g. location, posture (e.g. 'sit', 'stand', 'lean'), condition, quality, property, perception (e.g. 'see', 'hear'), possession, class-membership, grading, etc.--can all be regarded as manifestations of direct locative relations. (Recall that our concrete ordering relations involved the ordering of places or the direct locations of objects.) They differ essentially only with respect to whether the relation is concrete or abstract, this depending, for the most part, on the nature of the objects participating in the relation. We shall proceed on the working assumption that it is indeed the case that a sentence which is semantically stative describes a locational (including ordering and orientational) relation of some kind.

If we turn our attention now to spatial relations other than simple location, we find the constructs of directed movement, extended journeys, and border-crossings are also manifested in abstract as well as concrete domains. Thus, the following sentences exemplify descriptions of abstract directed movement in that, like

77. The girl is approaching womanhood

78. In his politics, Fred is moving towards the extreme left

79. Food prices are rising

80. Peter's self-confidence dwindled in the course of the interview

81. Mary is growing fonder of her husband

82. Bill's French is improving

concrete instances of movement towards some place, they involve locations which are successively closer to some extreme, direction-defining location. And, like the concrete cases, they imply a (static) ordering relation. Thus, to take two of the superficially simpler examples, 77. and 79. imply the ordering relations described in 83. and 84. respectively.

83. a. The girl has womanhood ahead of her (and her childhood behind)

b. The girl is between childhood and womanhood

84. Food prices are above what they were and below what they will be

Corresponding to such abstract locative relations as expressed in 58. and 59., are abstract journeys such as those in 85. and 86.

85. a. Polly $\left\{\begin{matrix}\text{entered}\\\text{joined}\end{matrix}\right\}$ the Army

b. Polly $\left\{\begin{matrix}\text{left}\\\text{quit}\end{matrix}\right\}$ the Army

86. a. Sam got (himself) into trouble

b. Sam got (himself) out of trouble

Other examples with overt markers of movement and initial and final location are those in 87. to 89. More interesting cases perhaps are

87. James went from abject poverty to absurd wealth

88. His health went from bad to worse

89. The apple went rotten

abstract journeys which are expressed by sentences lacking such markers (or, at least, some of them) and in which the lexical content of the verb establishes the mture of the locations involved and often the direction of the journey. Compare 90. and 91. with 60.b. and 60.c., respectively. 60.b. describes the final

90. a. i. John {obtained/took, received, bought} the answer from Bill

ii. John found the answer (in a book)

b. i. John {gave, sent, sold} the answer to Bill

ii. John lost the answer

91. a. i. John {learnt, heard} the answer from Bill

ii. John remembered the answer

b. i. John {taught, told/shouted/whispered} the answer to Bill

ii. John forgot the answer

locational relation of any of the journeys in 90.a. and the initial one of any of these in 90.b. There are, of course, differences within each set. For example, selling and buying, in contrast with giving and obtaining/receiving, involve a secondary, simultaneous journey (usually of money) in the opposite direction. Losing and finding, like leaving and arriving (cf. 42. and 43.) are simple border-crossings with only the initial or final locational relation specified, the other being the complementary relation--i.e. that in 92. In contrast, sending and receiving are comparable

92. John didn't have the answer

to leaving <u>for somewhere</u> and arriving <u>from somewhere</u> (cf. 36. and 37.), i.e. to border-crossings which are phases of an extended journey in which both initial and (intended) final locations are specified. Sentence 93. below describes the initial locational relation in the 'receive' variant of 90.a. and the (intended) final

93. Bill had the answer

locational relation in the 'send' variant of 90.b.

Similar remarks hold for the sets in 91. Again, remembering (in the re-inceptive sense) and forgetting are (here) border-crossings between the locational relation described by 60.c. (or the 'in his head' variant of 60.b.) and that in 94. Hearing (from) and telling (to) are perhaps similar to receiving (from) and sending

94. John didn't know the answer

(to) or, more concretely, to arriving (from) and leaving (for)--cf. 95. and 96. Learning and teaching are, in general, extended

95. John sent the news to Bill but Bill didn't receive it

96. John shouted the news to Bill but Bill didn't hear it

journeys but with certain important differences from those we have looked at so far. First, like hearing from and telling to, learning something from and teaching something to someone involve the transmission of something which we may simply call knowledge or information about something. In contrast to such movable objects as people, cars, and concrete objects in general, knowledge and information can be at more than one place at the same time (and, significantly enough, we speak of knowledge, information and news as <u>spreading</u>).

Thus, whereas 97.a. and 97.b. both imply 97.c., 98.a. and 98.b. do not imply 98.c. Furthermore, if we look in general at how such

97. a. John has given the parcel to Fred

b. Fred has taken the parcel from John

c. John doesn't have the parcel (anymore)

98. a. John has taught the predicate calculus to Fred

b. Fred has learnt the predicate calculus from John

c. John doesn't know the predicate calculus (anymore)

sentences as 98.a. and b. behave in relation to the verbs of aktionsarten and progressive aspect, we find that the paradigm is somewhat different than for our model sentence (cf. 4) of a concrete journey (cf. 11. to 15., 18., 52., 53.):

99. As John began to learn the poem, John ceased knowing none of the poem

100. As John began to learn the poem, John's knowledge of the poem began to increase

101. While John $\left\{\begin{matrix}\text{continued to learn}\\ \text{was learning}\end{matrix}\right\}$ the poem John's knowledge of the poem $\left\{\begin{matrix}\text{continued to increase}\\ \text{was increasing}\end{matrix}\right\}$

102. As John finished learning the poem, John came to know (all of) the poem

103. When John had stopped learning the poem, John knew $\left\{\begin{matrix}\text{part}\\ \text{some}\end{matrix}\right\}$ of all of the poem

104. While John was learning the poem, John knew $\left\{\begin{matrix}\text{part}\\ \text{some}\end{matrix}\right\}$ of the poem

105. John finished learning the poem $\supset$ John stopped learning the poem

That is, rather than an object being located successively <u>closer</u> to some goal, we have successively <u>more</u> of the object coming to be located at the goal (e.g. "in" John). As we shall see there is no real discrepancy here between these two paradigms for a journey: we simply have not yet considered the appropriate concrete analogue to such abstract journeys as this partitive interpretation of learning something. This will be done shortly. However, we may note at this time that corresponding to the border-crossings which can be viewed as the result of the set of locations between the initial and final locations being empty, in this 'part-whole' type of journey / are border-crossing / which result / when the object / consists of or is conceptualized as consisting of only one part--cf. the following, the latter of each pair describing a border-crossing

106. a. I forgot all my French in a few months

b. I forgot his name as soon as I heard it

107. a. John lost (all of) his winnings in a couple of days

b. John lost his umbrella at 2:00

108. a. Peter learnt {the predicate calculus / about all that had happened} in a few days

b. Peter learnt {the news / of the tragedy} at 2:00

109. a. John {told / taught} me the (whole) poem in a few minutes

b. John {told / taught} me that word a minute ago

There are, of course, many other problems involved in an analysis of the sentence types surveyed here which we have not discussed. However, our purpose has been only to show how the same notions of location, direction/orientation, movement towards and

journey are manifested in abstract domains as well as the more concrete ones in which the nature of such constructs is perhaps most transparent and easily explicated. We shall return to some questions connected with the localist analysis of these sentences below. But an adequate account of both the concrete and abstract instances of such spatial constructs as a journey depends on an understanding of the role and nature of existential and temporal location, to which we must now turn our attention.

7.3 Existential spatial constructs

7.3.1 Existential locatives

A substantial number of verbs or sentences classified, for example, by Vendler as accomplishments, by Kenny as performances, and by Jespersen as conclusives are instances of existential causatives, sentences in which the direct object of the verb is an 'object of result' ('objet effectué', 'effiziertes objekt'). These can be regarded as describing existential journeys in that, as a first approximation, something (the object of result) comes or is brought from non-existence into existence. That is, the object undergoes a change in its existential status or location. Typical examples of such journeys are those encoded in the following examples; sentence 114. involves an existential passage in the reverse direction, from existence to non-existence.

110. Jake built a barn

111. Isabel sketched a figure on her notebook

112. Fred wrote a poem

113. Tom dug a hole

114. A hurricane destroyed the house

However, before we can propose an account of such sentences, we must clarify somewhat the notion of simple existential location--i.e. what it might possibly mean for an object to be in existence or non-existence. We may begin by recalling Bally's comments (§4.2) that "la notion d'existence est un cas-limite de localisation "indéterminée"", Kahn's remark (cf. fn. 1, p. 74, also Kahn, 1973) that the ancient Greeks operated with a conception of 'being' whereby whatever is, is somewhere, what is nowhere is nothing at all, and, more particularly, Lyons (1973) analysis of existential predications as involving in their underlying structure the weak demonstrative adverb 'there' derived by abstraction from the notion of location in the deictic setting of the utterance.

For our purposes it will not be necessary to embroil ourselves in philosophical debate over such problems as the nature of existence. It will be sufficient to work with a simple yet intuitively natural interpretation of existence as presence in the world, i.e. to be in existence or to exist is to be located in the unified spatio-temporal world which is intersubjectively presupposed as the total universe of discourse. In order to account for linguistic usage, however, we must allow this world to include entities of a more abstract nature that would not, strictly speaking, be entertained by the physicist as existing in space and time. We will represent this world by E and location of some entity X in this world as X in E (as an abbreviated form of X loc INT(E)). We will represent non-existence as location in the complement of E, i.e. X in $\overline{E}$.

Now, there is a limited set of constructions which simply assert

the existence (or non-existence) of some physical entity (as opposed to those which presuppose such): the main ones are those involving 'alive' ('is living'), 'exist' and 'there is,..' and, as has often been remarked, these occur (except, perhaps, for 'alive') typically with another locational expression. These we suggest

115. Lions exist in Africa

116. There are no tigers in Africa

117. Tigers live in India

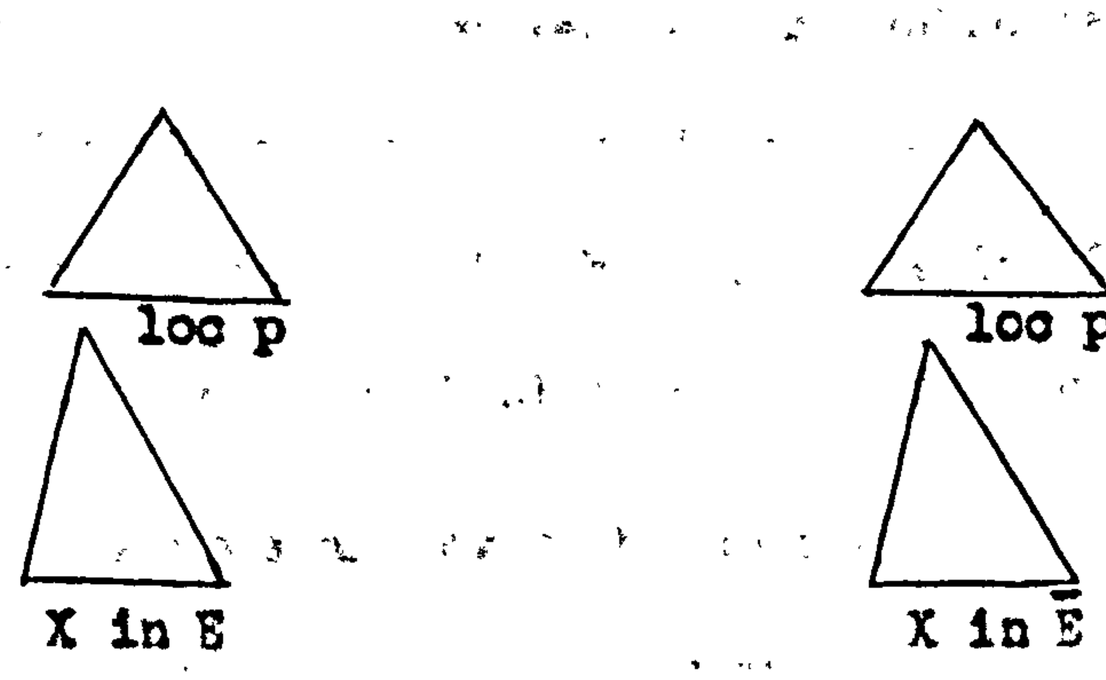
118. No flaws exist in the fabric

119. There are several flaws in the fabric

120. *Several flaws live in the fabric

are all of the general structure in 121. where X, generally a set

121.



a. b.

or (quantified) subset of entities, will vary in its internal structure. (121. introduces the schema of representation to be adopted in the following discussion). We have represented the non-existential locative as superordinate to the existential when what might be more appropriate is an appositional structure (cf. Lyons, 1973). However, since it is not clear how such structures should be represented and since such a superordinate analysis appears to be

appropriate in the case of temporal locatives, we will continue to use such representations for the spatial (concrete) locatives as well. Thus, 121. involves the ascribing of a concrete location p to the existential locative relation X in E.

7.3.2 Physical extension

In everyday discourse we do not make extensive use of such explicitly existential (locational) structures as exemplified in 115. to 120.--either the existence of the objects we talk about is presupposed (e.g. in our use of proper names and definite descriptions) or implicitly asserted by spatially locating the entity at some place in the world, i.e. at some place in E. However, we would like to suggest that there are two other sets of predicates which have to do with physical existence and which represent a straightforward extension of 121. above. The first set we have in mind are such verbs as 'stretch' and 'extend', as used in the sentences in 122. to 125. We may compare these to their indefinite, existential locative counterparts

122. The fog extends all over the country

123. The poor soil extended as far as the county line

124. The Trans-Canada Highway stretches (all the way) from St. John's, Newfoundland, to Victoria, B.C.

125. The crack stretched (all the way) across the ceiling

126. to 129.

126. There is fog / It's foggy } all over the country

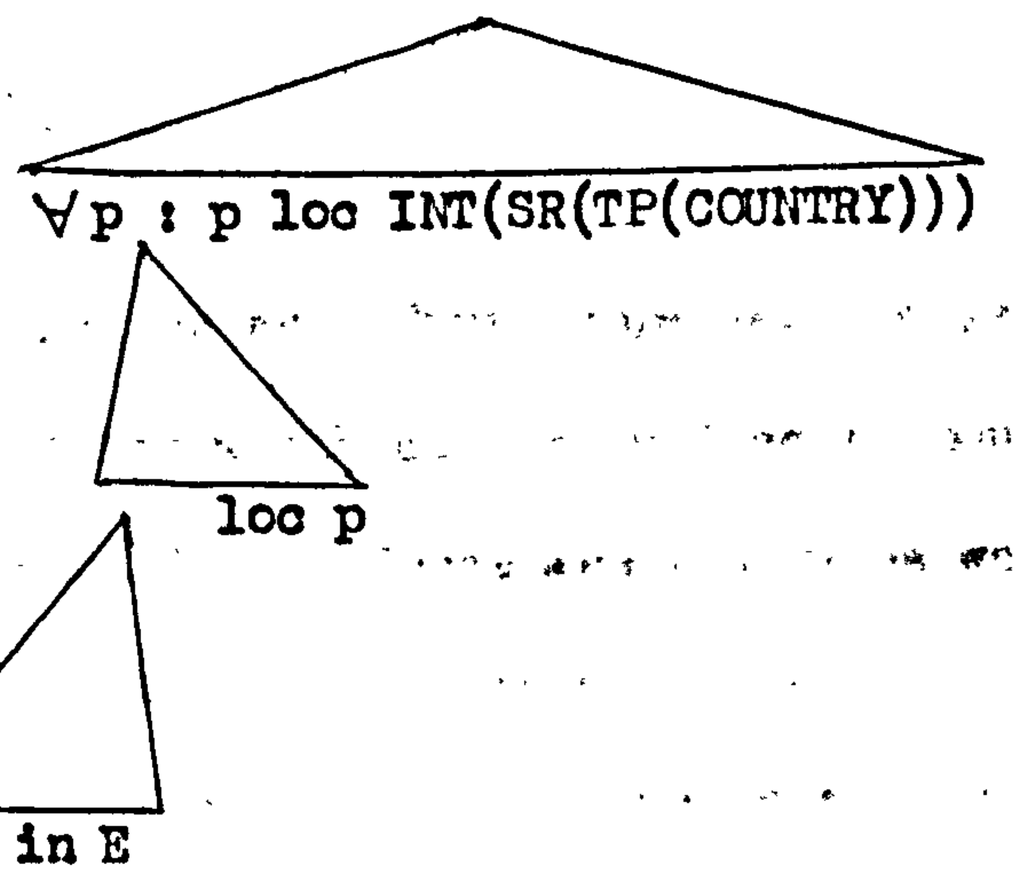
127. There was poor soil as far as the county line

128. There is a trans-Canada highway from St. John's, Newfoundland to Victoria, B.C.

129. There was a crack all the way across the ceiling

Sentence 122. simply involves structure 121.a. within the scope of a universal quantifier whose restricted domain is the set of points or places which are "over the country". Adopting provisionally (cf. § 7.3.3) the usual formalization of universal quantification and, later in 143., of existential quantification, we can represent the semantic structure of 122. as below. (The formula

130.



following the colon specifies the restricted domain of the universal quantifier, that which is embedded under p is its scope. Thus, in more familiar notation, 130. is equivalent to 130'.) 130. may

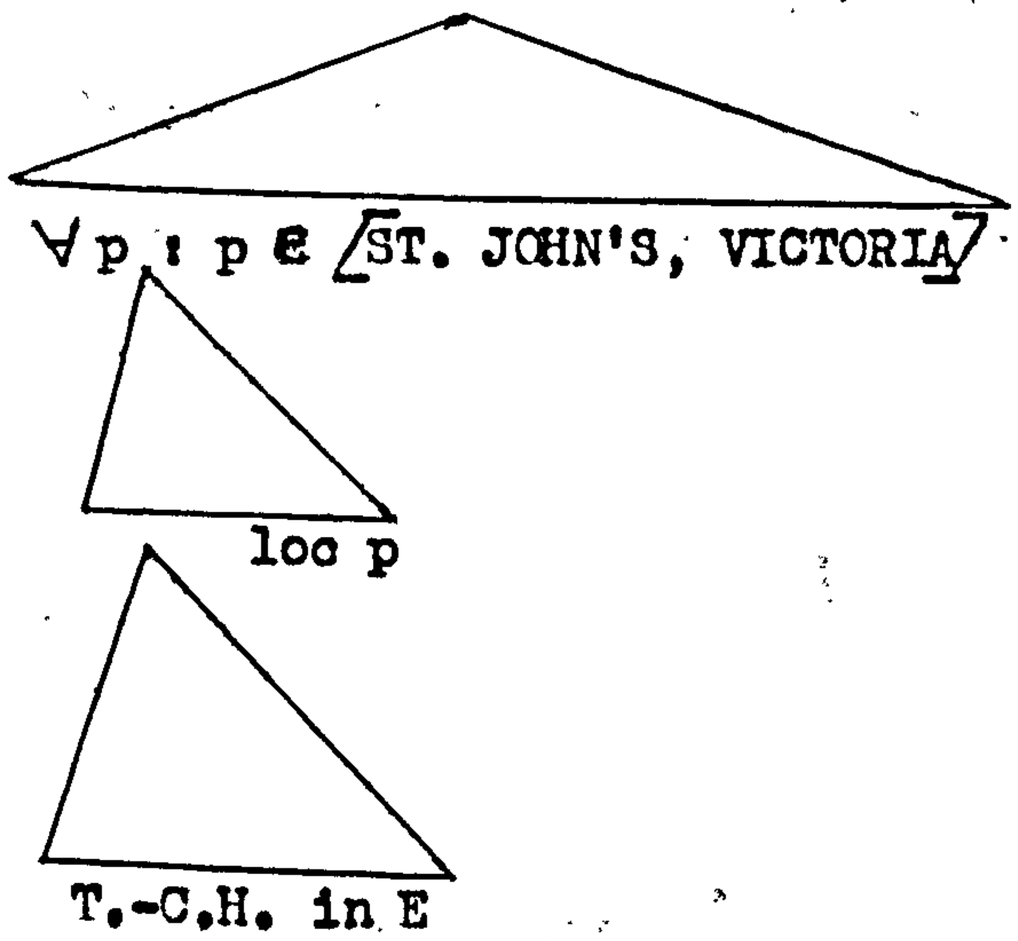
130.'. $\forall_{p \text{ loc } INT(SR(TP(COUNTRY)))} p ((FOG \text{ in } E) \text{ loc } p)$

be glossed as "at all points over the country the fog is in existence". Sentence 124. appears to differ only in the domain of the universal quantifier being restricted to a set of points in an interval--cf. its semantic representation in 131.

We will want to elaborate 131. somewhat in order to make explicit

the source of the expressions 'from...' and 'to...'. However,

131.



in order to do this, we must first consider the second set of existential predicates which can be applied to noun phrases referring to physical entities. These are the verbs which we have discussed in relation to aktionsarten, namely 'begin', 'continue', 'stop' and 'end'. The use of these verbs with respect to existential properties of physical objects rather than of situations (i.e. temporal objects) has received little attention (but cf. Wieizbicka, 1973), but the following sentences reveal that they behave in an exactly parallel fashion, including the ambiguity inherent in 'continue' (cf. fn. 1 p. 227):

132. The Trans-Canada highway begins at St. John's and continues (on) for over three thousand miles

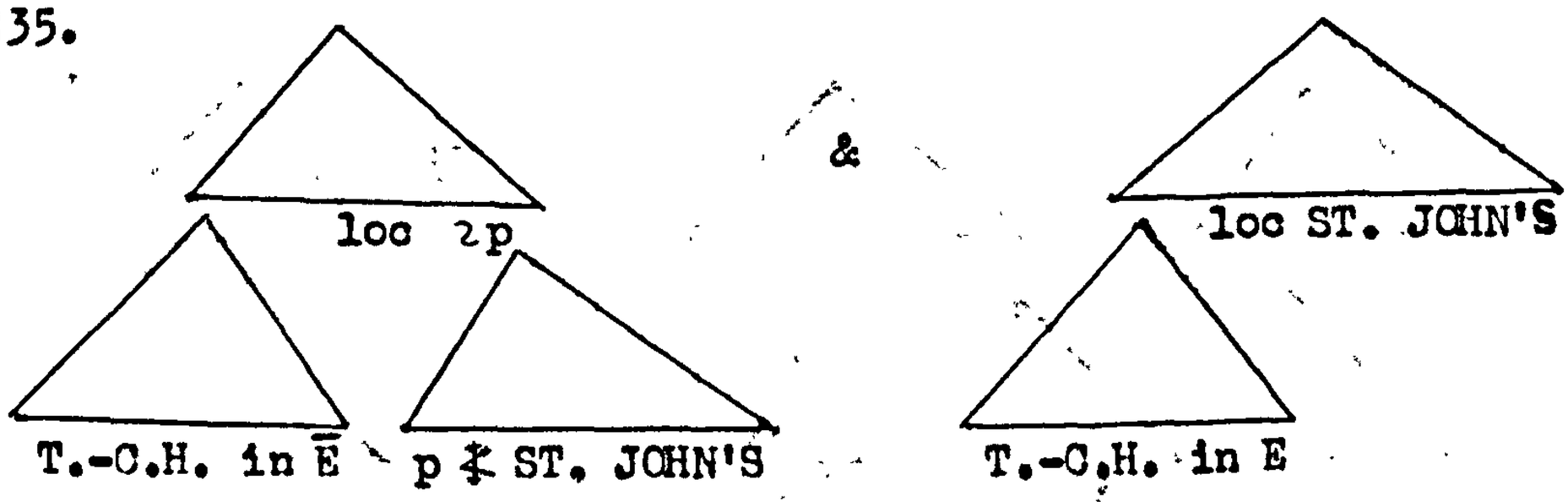
133. At one time the highway stopped at Golden and continued only $\left\{\begin{array}{l}\text{at Kamloops}\\ \text{after a stretch of a few hundred miles}\end{array}\right.$

134. At that time, the highway ended at Vancouver; now it only stops there, $\left\{\begin{array}{l}\text{continuing}\\ \text{beginning again}\end{array}\right\}$ on Vancouver Island

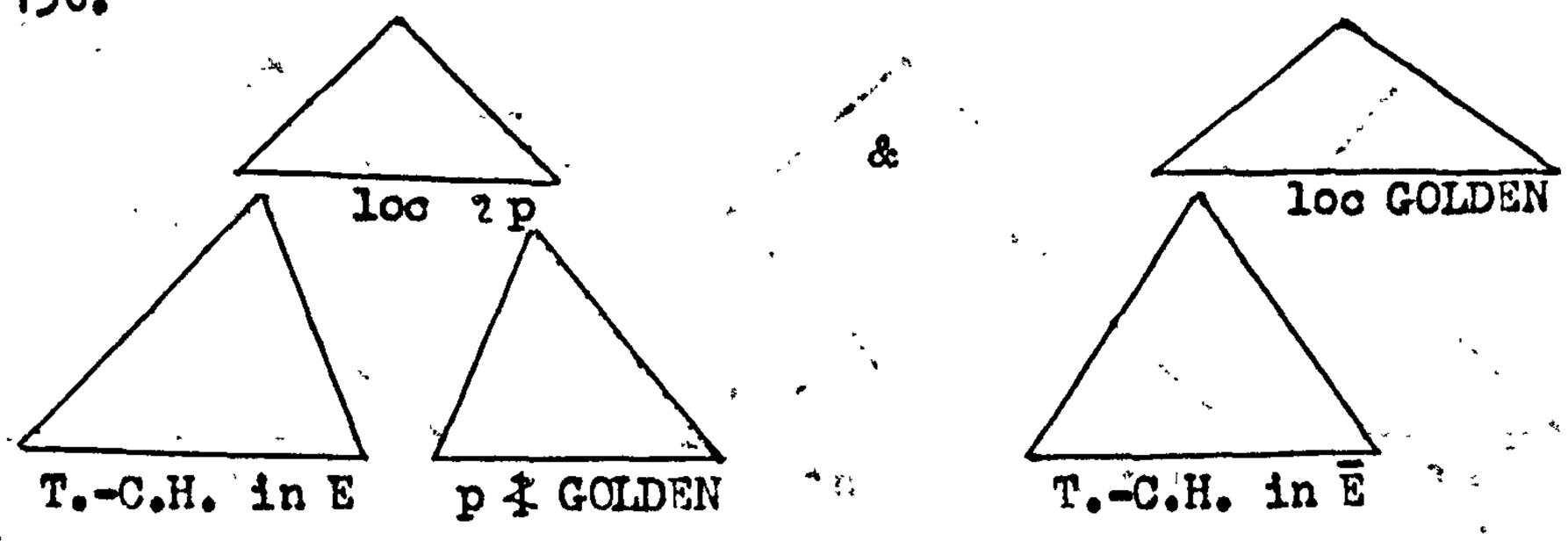
where it ends at the capital, Victoria

Now, given the structures in 121., we can represent the meaning of the first clause in 132. and the first clause of 133. by means of the conjoined structures in 135. and 136., respectively. The

135.



136.

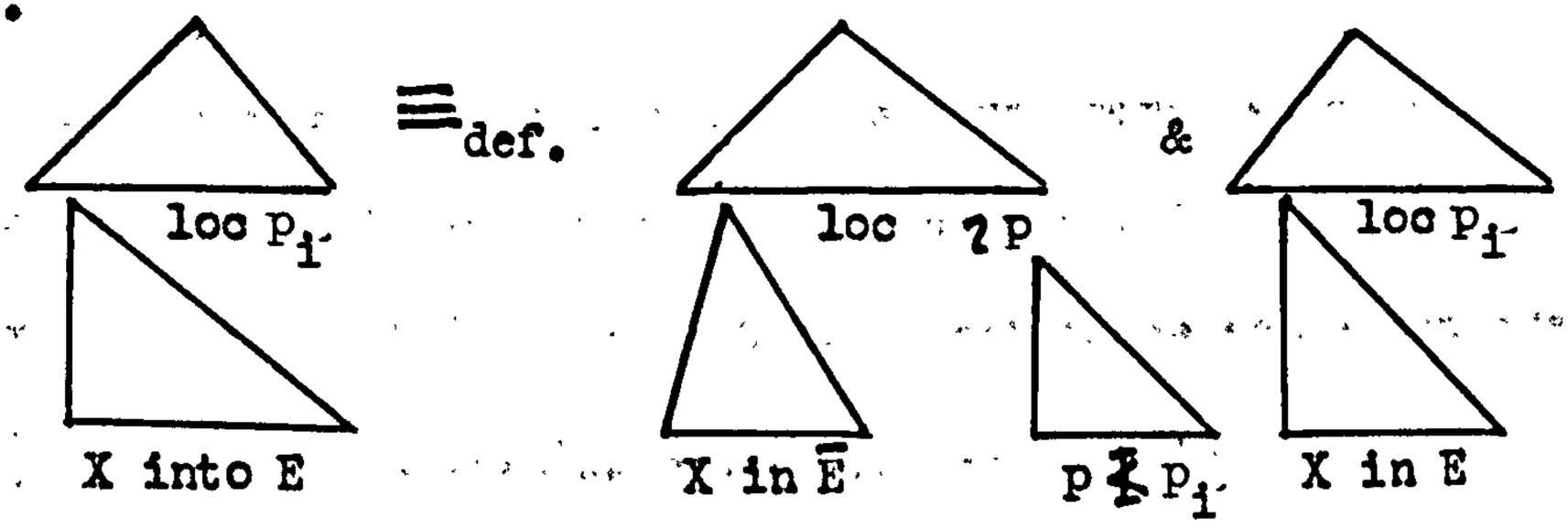


symbol 2 is the iota operator of the predicate calculus and its scope is that which it dominates. I has been superimposed upon the ordering symbol to represent "immediate succession", which notion can also be definitionally explicated within the predicate calculus. We can gloss 135. in the following way: "at the place immediately preceding St. John's, the Trans-Canada Highway does not exist (= is in non-existence) but at St. John's the Trans-Canada Highway does exist (= in existence)". The gloss for 136. is the reverse, with Golden replacing St. John's.

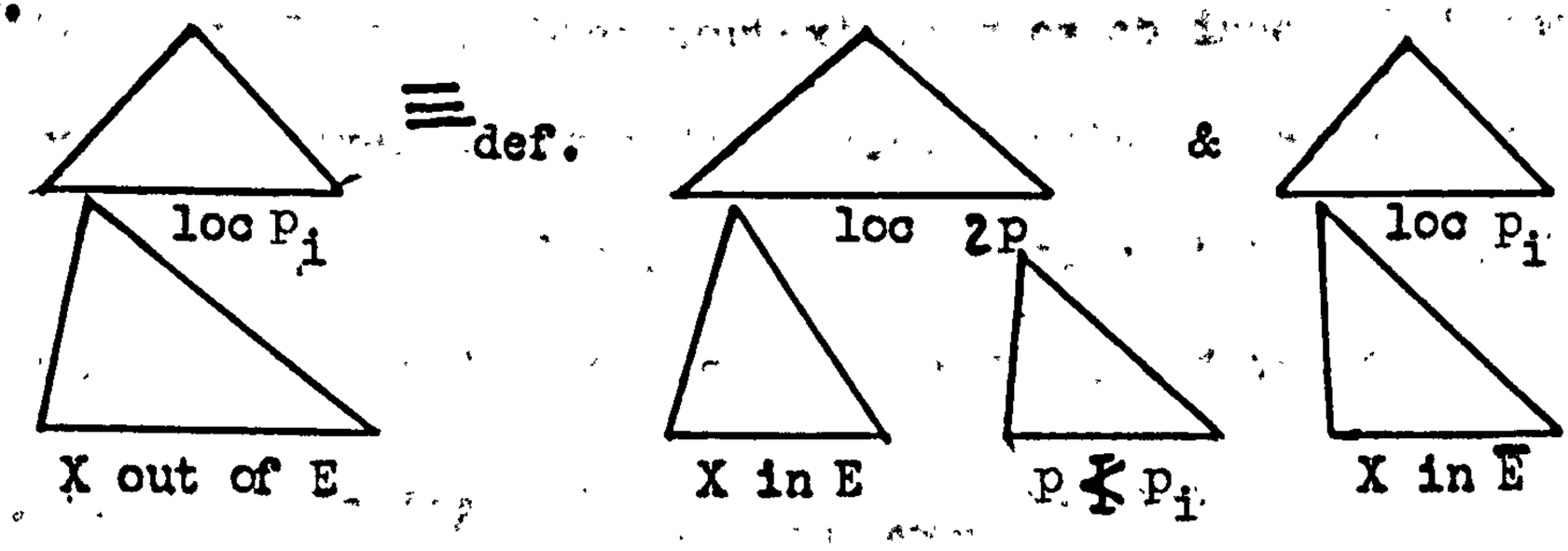
Rather than having to represent these constructions everytime

by such a cumbersome conjoined structure and, more importantly, in order to capture the fact that inception and cessation are treated linguistically as simple situations located at only one rather than two, points, let us define two complex semantic relations <u>into E</u> and <u>out of E</u> in the following manner:

137.

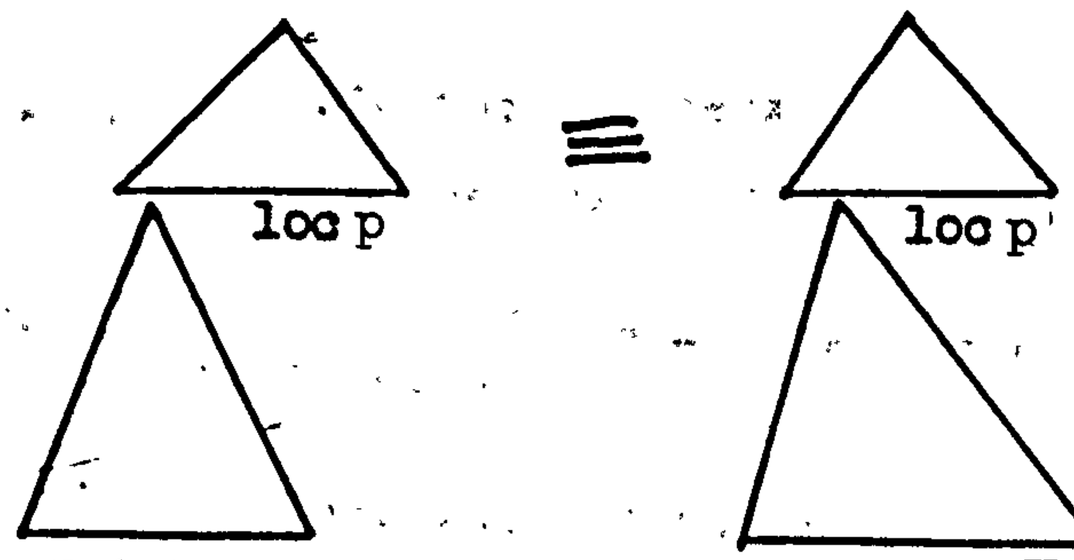


138.



It will be observed that the following equivalence holds:

139.



Now, if in addition to 137. we have the information that at another point p_h such that $p_h < p_i$ it is the case that X is in E, then the conditions are satisfied for the use of 'begin again' or 'continue'

(in its re-inceptive sense). Similarly, if in conjunction with 138. we have the information that at a point before p_i it is the case that X is in $\overline{E}$, then 'stop again' may be used. If instead we have the information that at no point following p_i is it the case that X is in E, then 'end' is applicable as, for example, in the last clause of 134.

The last existential verb to be considered here is 'continue' in its non-inceptive interpretation--i.e. as equivalent to 'not stop', exemplified in 140.a. and 140.b. Both these sentences are

140. a. The fog continues for three miles

b. The fog doesn't stop for three miles

appropriate only if it has been contextually established that there is fog at some point immediately before (i.e. contiguous with) the stretch of three miles involved. For example, either of 140.a. or 140.b. could be conjoined to 140.c. Otherwise, a deictic

140. c. { There's fog / The fog begins } at Lochinver

interpretation is available, in which case 140.d.i. or 140.d.ii.

140.d. i. There's fog here

ii. The fog begins here

140.e. { There's fog / It's foggy } for (the next) three miles

would be most naturally assumed to be true. In either case, 140.e. is implied as well.

In view of these shared semantic properties of 140.a. and 140.b., it is proposed that 'continue' be treated as a lexicalization of the

structure underlying 'not stop'. However, one proviso is necessary. From the sentences in 141., it will be observed that whereas 'not stop' can co-occur with a point locational, 'continue' can do so only in its re-inceptive interpretation.[1] Now, 141.a. involves the negation of all of 141.c.--i.e. the spatial locative is within the

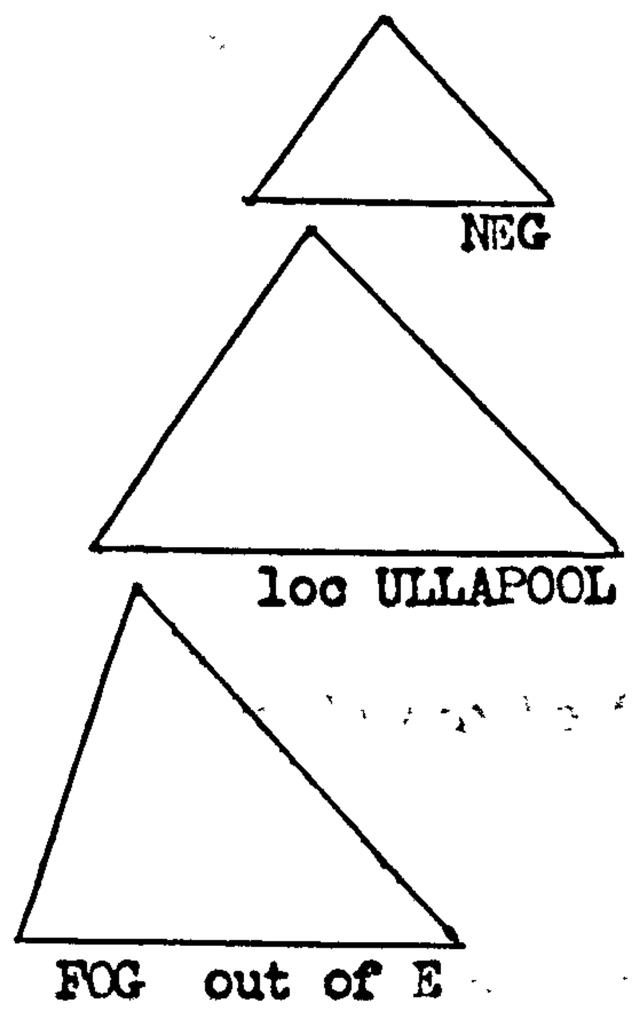
141. a. The fog doesn't stop at Ullapool

b. The fog continues at Ullapool

c. The fog stops at Ullapool

scope of negation, as represented in the structure in 142. (We

142.



shall provisionally treat negation as an unanalysed operator over entire propositions--i.e. as the ~ of the propositional calculus.) The existence of a specified locative intervening between the negation and the lower existential proposition prevents their being

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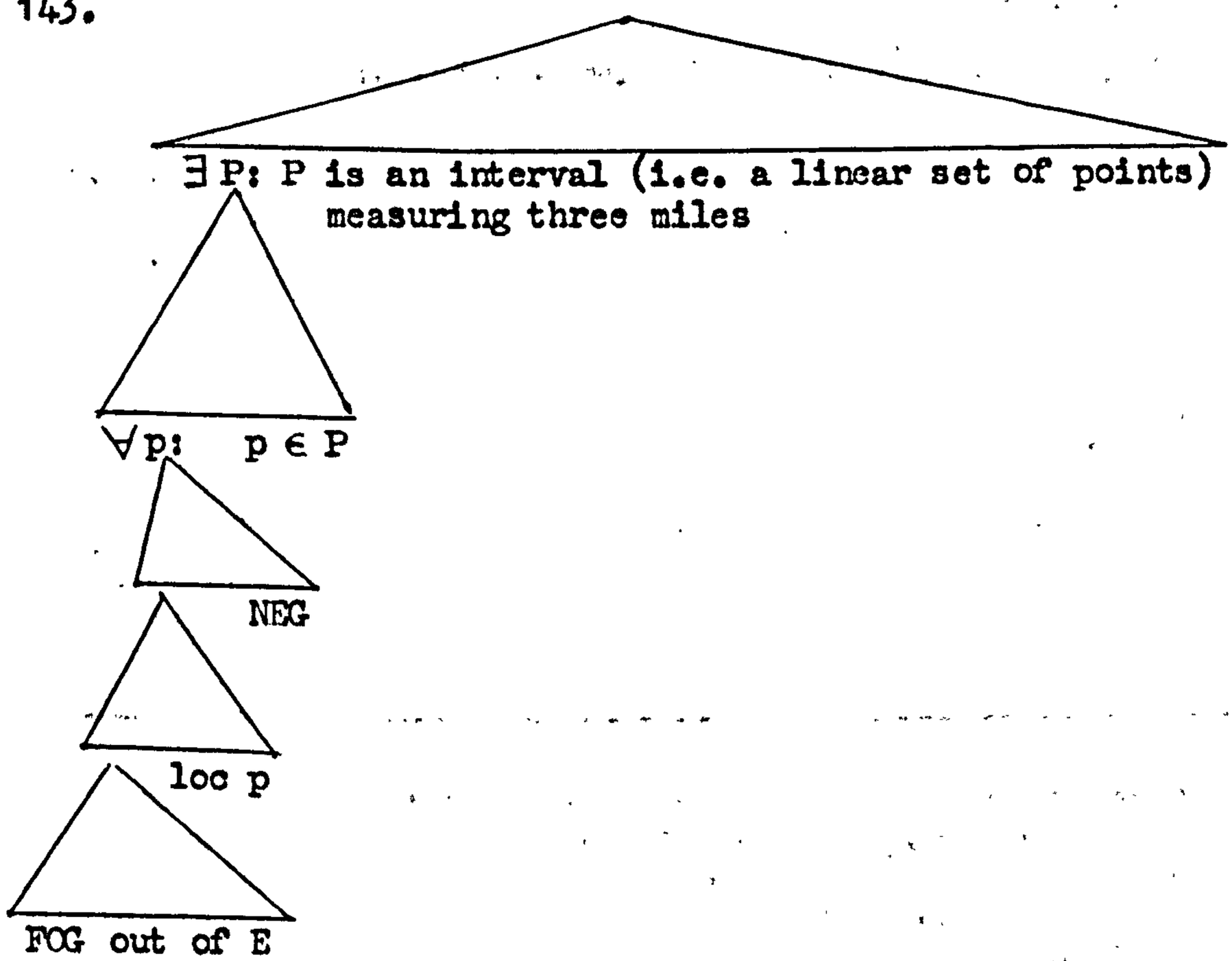
[1] This restriction is more striking in the temporal sphere when we consider the related verbs 'remain', 'stay' and 'keep' which do not have an alternative inceptive interpretation:

1. *John stayed/remained awake at midnight
2. *Fred kept talking at midnight

given a port-manteau realization as '(The) fog continue'. In such cases as 140.a./140.b., however, in which the locative is bound by a quantifier--cf. the (abbreviated) semantic representation in 143.--

143.



or where the locative is anaphoric--as in the sequence in 144. below--

144. We expected the fog to end at Ullapool. But when we got there we found that it continued

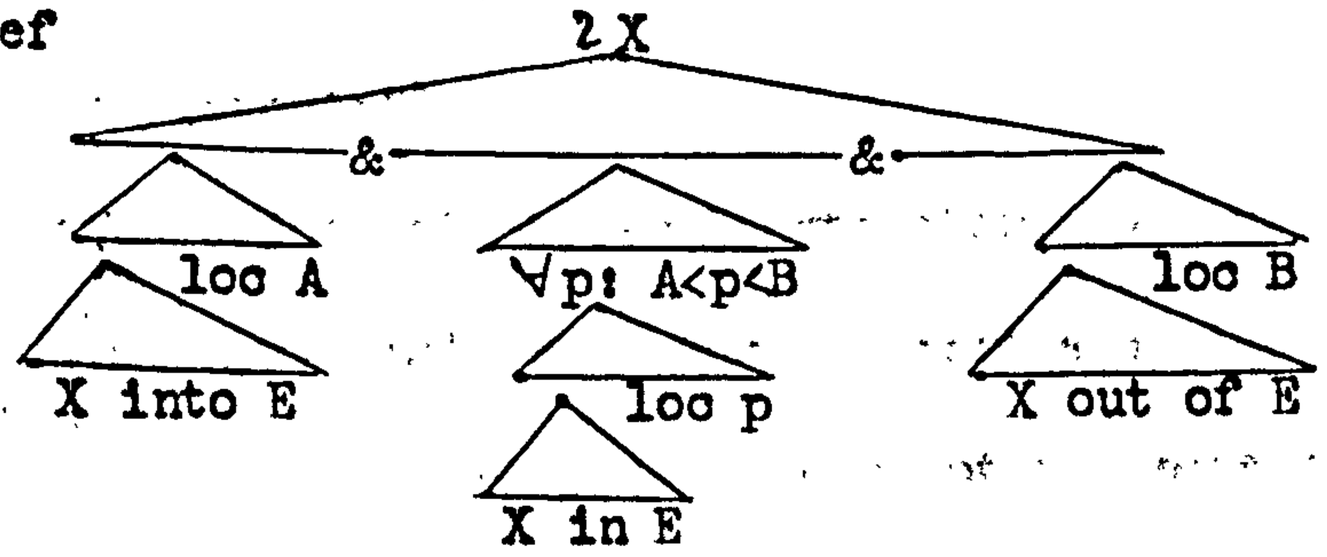
then it will be recoverable from the context and hence deletable during the realization process. This would enable lexicalization to

'continue' to take place.[1]

Let us now return to the structure in 131. What we have symbolized with the customary notation for a closed interval is decomposable in terms of our semantic predicates in E, into E and out of E as proposed in 145. below. That is, [ST. JOHN'S, VICTORIA]

145.

[A,B] =$_{def}$

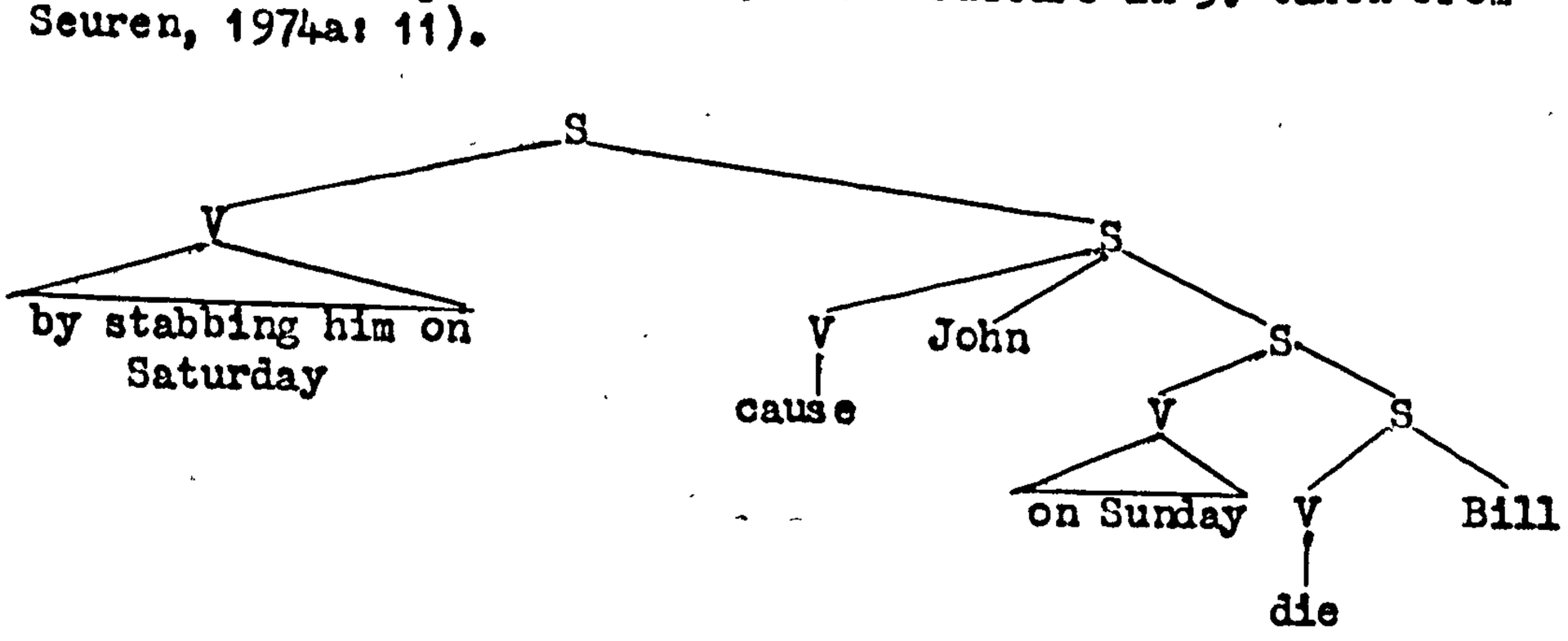


[1] These remarks could be given a more precise formulation granted some such realization process as the cyclic operation of predicate raising and lexical insertion as adhered to by the generative semanticists (cf. references given in fn. 1 p. 14). In fact, the same sort of phenomenon as discussed above has been considered with regard to the lexicalization of the structure underlying 'cause to die' to 'kill' (for arguments in favour of such an analysis of 'kill', cf. especially McCawley, 1973). It has been observed (cf. Fodor, 1970) that a sentence such as 1. below is not equivalent to 2. and that 2. in fact is somewhat anomalous.

1. John caused Bill to die on Sunday by stabbing him on Saturday

2. John killed Bill on Sunday by stabbing him on Saturday

Again, if it is assumed that the underlying specified temporal locative intervenes between the structures underlying 'cause' and 'die', the unification of the configuration into one lexical item 'kill' would be prevented--cf. the structure in 3. taken from Seuren, 1974a: 11).



is, by definition, the (linear) entity which begins at St. John's and ends at Victoria and exists at all points in between.[1] Accordingly, the notion of 'path' (cf. Bennett, 1972) can be seen to be a derived, i.e. complex, one and corresponds to the whole of (A,B), or rather, to its definition (cf. the third conjunct in the definiens of 145.). Intuitively-speaking, a path is a linear object (a set of points) from one place (a point) to another (cf. 'all the <u>way</u> from St. John's to Victoria').

Before leaving the subject of physical extension, we have yet to make precise the underlying nature of such sentences as 146. and 147. What is involved here is the specification of the measure (μ)

146. The fog patch extends northward (from Aberdeen) for twenty miles

147. The pipeline stretches across the prairies for (a distance of) a thousand miles

of an interval at all points of which the object concerned is in existence. The expressions 'northward' and 'across the prairie' give locational and/or orientational information regarding the interval. Within our framework, then, 146. can be represented as in

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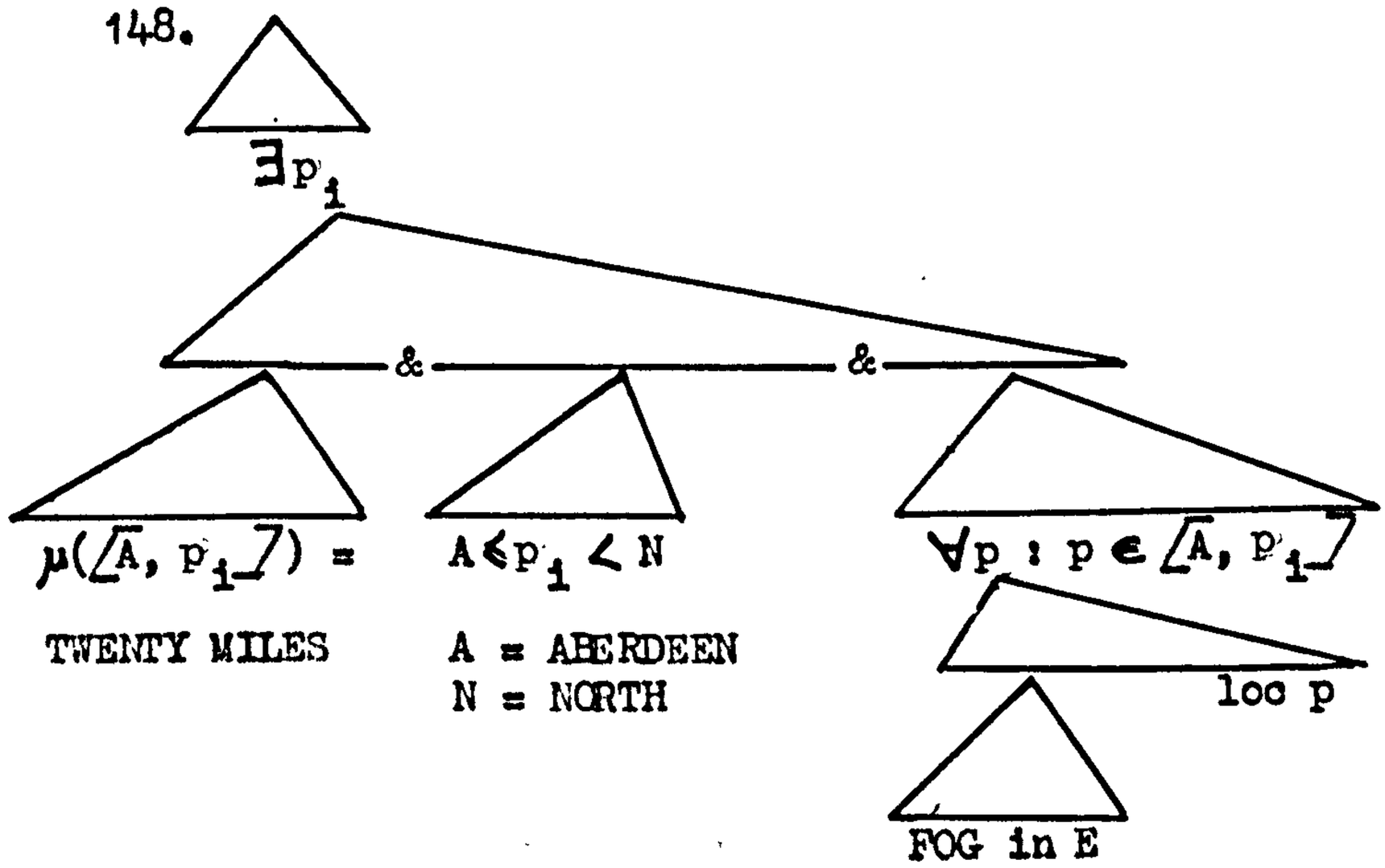
[1] 145. is, in fact, the definition of the half-closed, half-open interval $\langle A,B)$ since the definition of <u>out of E</u> is such that B itself is excluded from the set of existential locations of X. There is a certain degree of indeterminacy involved here and our definition of <u>out of E</u> is probably more precise than the actual usage of 'stop' and 'end'.

148., where $\langle \overline{A}, p_i \rangle$ (which could be decomposed according to 145.)



underlies 'a stretch/distance' which need not appear superficially.

It could be expected that 148. and the similar structure underlying 147. are related to those underlying sentences 149. and 150.

149. The fog patch { is twenty miles long from Aberdeen north / northward from Aberdeen is twenty miles long }

150. The pipeline across the prairies is a thousand miles long

Now, just as the existence of physical objects can be assigned locations in physical space, the existence of configurations of objects and places (with or without a temporal dimension)--i.e. situations--can be located in physical space. Consider the following sentences:

151. a. Mayfield Road { becomes / begins to be } bumpy at (the intersection of) Fountainhall Road

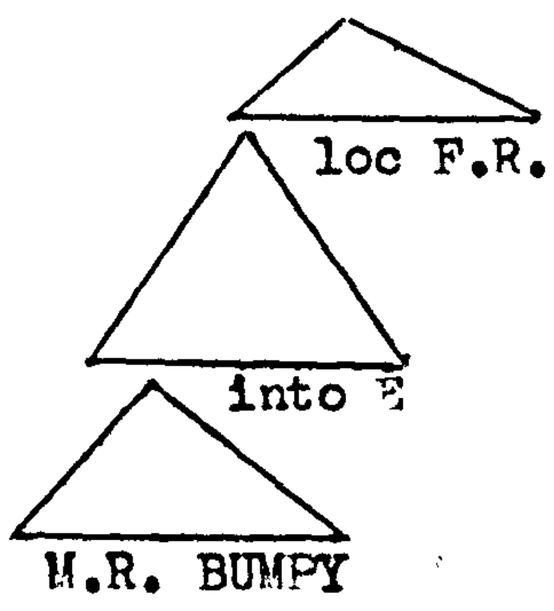
b. Mayfield Road { remains/stays / continues to be } bumpy { for half a mile / up to the intersection with West Mains Road

c. Mayfield Road is bumpy { all the way from Fountainhall / for half a mile } Road to West Mains Road

d. Mayfield Road { ceases to be bumpy / stops being } at West Mains Road

The semantic representations for these sentences follow in a straightforward manner from those above, the only difference being that X in our semantic formulae represents a situation rather than a physical object or, more generally, it represents a 'second-order' rather than a 'first-order' entity (cf. Lyons' (1968a: 8.1.10) use of these terms with reference to nominals and Kahn's (1973) extension of them to the entities referred to by such nominals). Accordingly, X will be propositional in its internal logical structure. Thus, for example, the semantic configuration underlying 151.a. is that proposed in 152. (disregarding the logical structure of 'Mayfield Road (be) bumpy' which, we assume, is ultimately locational in nature).

152.



We are now in a position to give a partial account of such spatial expressions as 'close/near to', 'far from', '(be) separate from', 'meet', etc. which we have so far neglected. The proposals we will be making are inspired by Anderson (1973). Consider first the sentences below. These can be glossed as "the measure of the

153. a. Winnipeg is far from Calgary

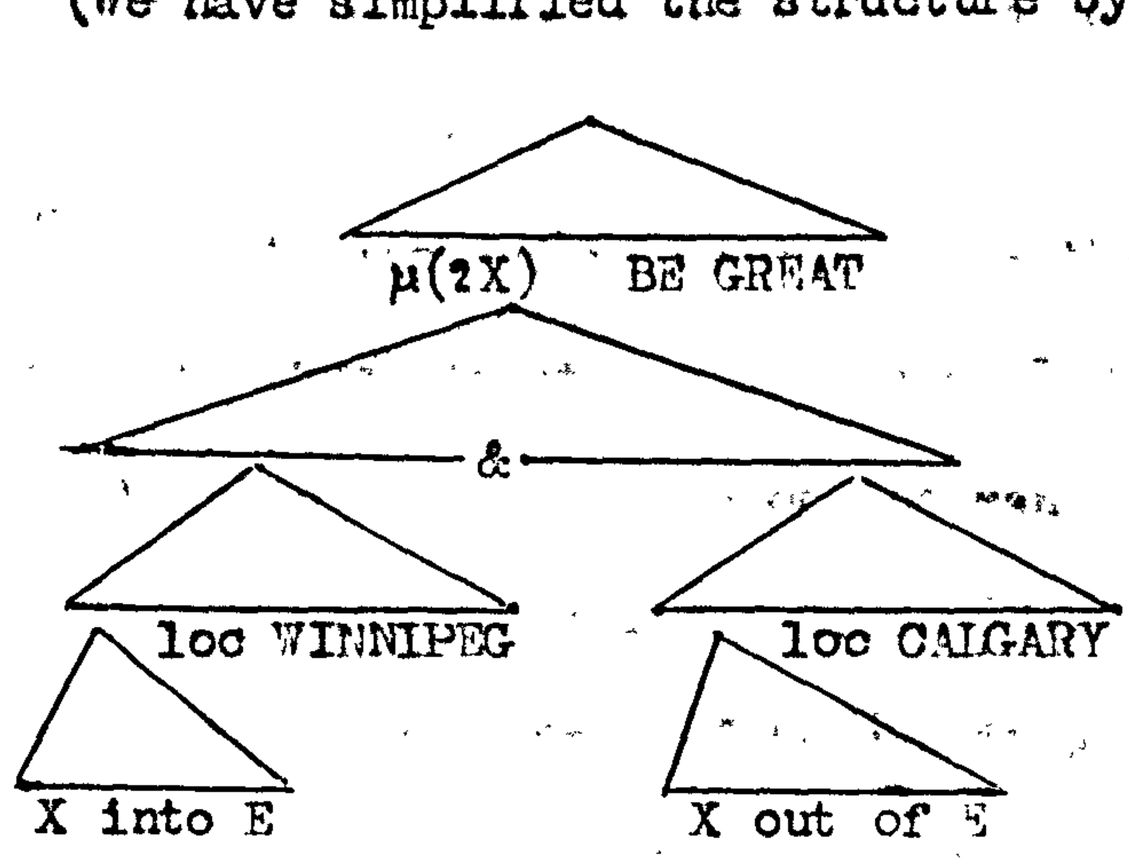
b. Winnipeg is a considerable distance from Calgary

154. a. Ottawa is close to Montreal

b. Montreal is a short distance from Ottawa

interval beginning at Calgary and ending at Winnipeg is great/considerable" and "the measure of the interval beginning at Montreal and ending at Ottawa is small (= not great)", respectively. The inherent negativity of 'close' can be assumed to dictate that the 'from-' phrase rather than the 'to-' phrase is subjectivized--hence the discrepancy in the order of these elements in 154.a. and 154.b. We suggest that the structure underlying 153.a./153.b., for example, might be something like 155. below. (We have simplified the structure by omitting the

155.



sub-configuration representing the universally quantified portion of the definition of X--i.e. "at all points between Winnipeg and Calgary, X is in existence".)

In a sentence such as 156.a., Anderson (1973d) suggests that what is involved is the existence of a distance between the two

156. a. The Rocky Mountains are separate(d) from the

Coastal Range

mountain ranges. In 157., on the other hand, an interval between

157. b. The Jasper Highway {branches off from / separates from} the Trans-

Canada Highway at Lake Louise

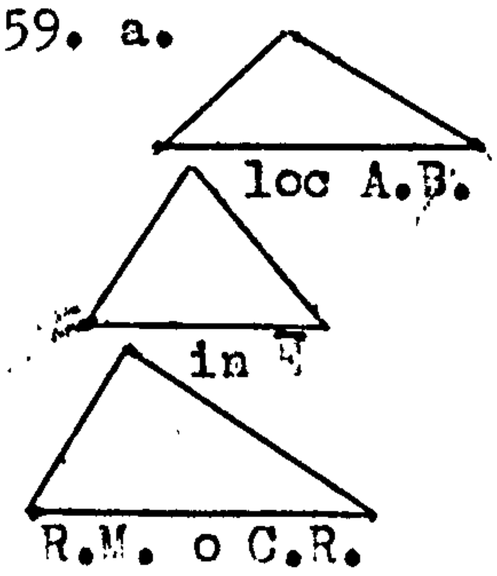
the two highways is asserted to come into existence at a certain point, and in 158. an interval between two rivers is asserted to

158. The Elbow River {joins / meets} the Bow River at Calgary

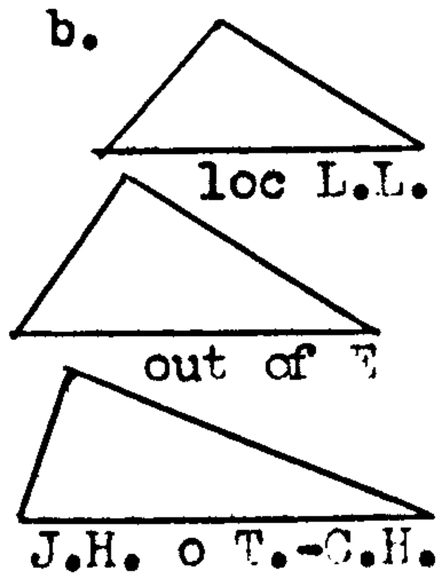
go out of existence at a certain point. However, perhaps more appropriate characterizations of the meanings of these sentences (and one which allows for a more obvious source of '(off) from' in 157.) are those involving the non-existence, the cessation and the inception, respectively, of some such relation as contiguity, coincidence or part-whole between the two entities. (For the purposes of the present discussion, we will make the simplifying assumption that these three relations are specializations of a relation of 'overlapping' in the sense of Goodman (1966): x o y stands for "x overlaps with y" (cf. fn. 9, p. 67). The contradictory of x o y is "x is discrete from y" (symbolized as x ⊥ y).) Thus, in 156. it is asserted that it is not the case that the Rocky Mountains (R.M.) are contiguous with the Coastal Range. The non-existence of such a relation could be spatially restricted by the addition of a locational adjunct, such as 'at the American border (A.B.)', or of an adjunct of spatial extent, such as 'for a stretch of one thousand miles'. Similarly, in 157. it is asserted that at Lake Louise (L.L.) the Jasper Highway (J.H.) ceases to be part of/

coincident with the Trans-Canada Highway (T.-C.H.) while in 158. it is asserted that at Calgary it comes to be the case that the Elbow River (E.R.) is part of/coincident with the Bow River (B.R.). We suggest, therefore, the following semantic configurations for these sentences:

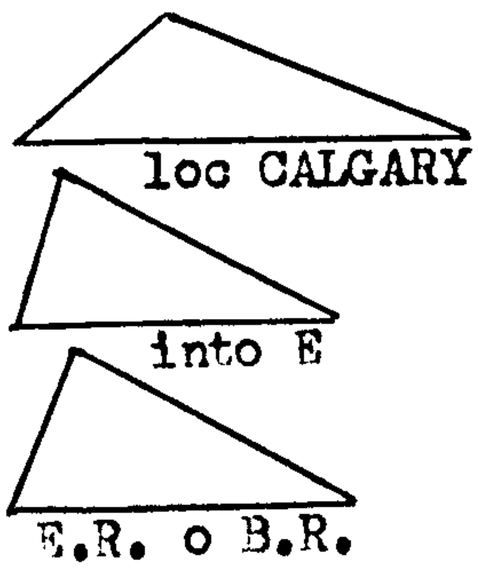
159. a.



b.



c.



Finally, let us make some strictly programmatic remarks concerning the semantic description of sentences containing such spatial expressions as 'over'/'under', 'across'/'through' and 'around'. Besides their use in sentences describing motion, these expressions occur in static contexts and in these cases can sustain at least two distinct interpretations--an extensional and a locational one. In some cases, ambiguity results. All we wish to do here is give some indication and illustration as to how the meanings of such sentences can receive an explicit characterization within the framework we have been developing. Consider, therefore, the following sentences:

160. a. It's misty / There's mist } { over the mountains / across the lake

b. Mist extends/stretches { over the mountains / across the lake

c. It's misty / There's mist } on the other side of the { mountains / lake

Sentence 160.a. is ambiguous between the interpretation of 160.b. and that of 160.c. The possibility of ambiguity resides in the nature of the referent of 'mist'--i.e. in the fact that mist is capable of having an extension in one or more dimensions. The same ambiguity does not occur when the object involved is not normally extendable in such a manner--cf. the sentences in 161.

161. a. There's a forest ranger station {over the mountains / across the lake}

b. *A forest ranger station extends {over the mountains / across the lake}

c. There's a forest ranger station on the other side of the {mountains / lake}

Sentence 161.b. is acceptable and 161.a. ambiguous only if a rather unconventional conception of a forest ranger station is adopted. The possibility of a dual interpretation is therefore dependent upon contextual and ultimately, so it would seem, pragmatic factors.

Let us confine our attention to the sentences in 160. with 'across'. It has been observed (cf. Gruber, 1965; Leech, 1969) that 'across' incorporates or realizes both a semantic configuration which can otherwise be realized as 'from one side of' and a semantic configuration otherwise realizable as 'to the other side of'. Indeed, 160.a., in one reading, and 160.b., can be paraphrased as 160.a.' and 160.b.', respectively. In 160.c. an implicit 'from'

160. b.' Mist extends from one side of the lake to the other

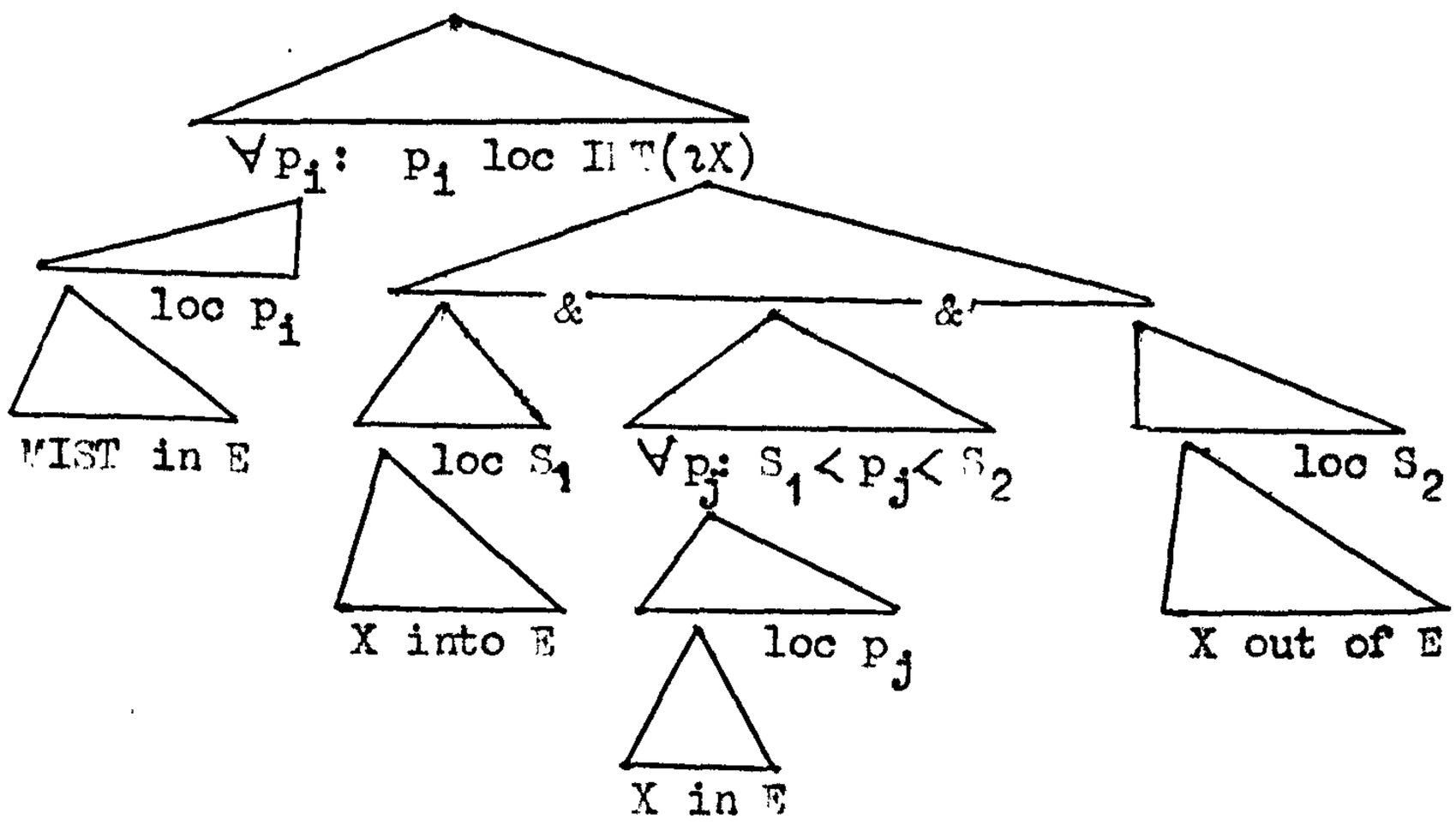
a.' {It's misty / There's mist} from one side of the lake to the other

phrase, interpreted deictically in the absence of specification to the contrary, can be made explicit, as in 160.c.'. This latter 'from' phrase, however, is most appropriately interpreted not as a

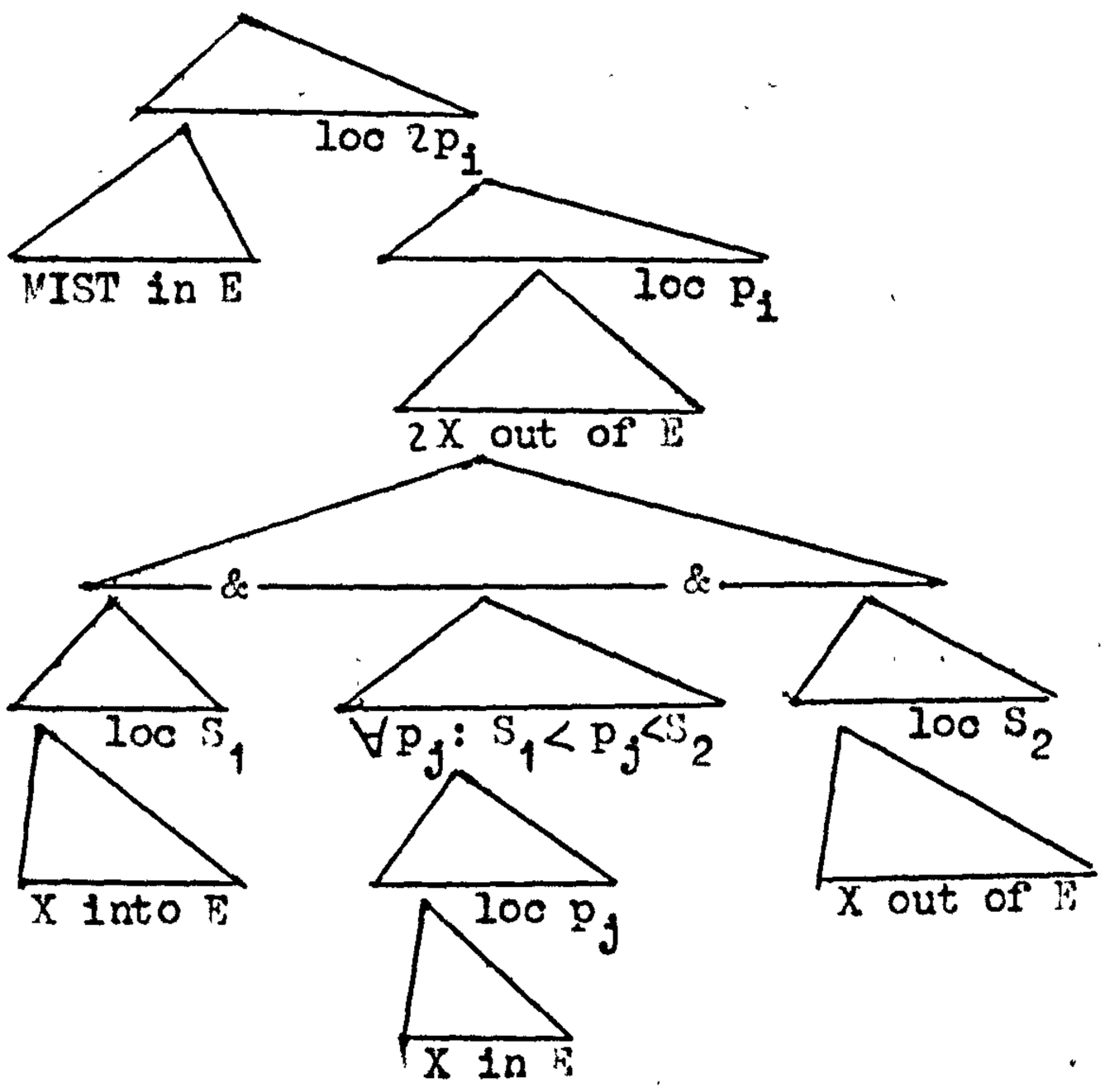
160. c.' There's mist on the other side of the lake from here

co-constituent with 'on the other side' but rather as indicating the point at which an abstract path to the other side of the lake commences (cf. 'seen from here'). That is, whereas 160.b. asserts that there is mist at all points in the space from one side of the lake to the other, 160.c. states that there is mist at the end of a line which begins at one side of the lake (namely, that side containing the speaker's location) and ending at the other side. Thus, omitting many of the details which do not affect the general features of the analysis, we can propose the following two underlying structures for 160.a.: 162.a. corresponds to the extensional interpretation (160.b.) and 162.b. to the locational interpretation

162. a.



162. b.



(160.c.). (We have let S_1 abbreviate the configuration corresponding to "one side of the lake" and S_2 for that corresponding to "the other side of the lake". We have not included in 162.b. the perhaps appositional structure which further specifies S_1 as the side of the lake including the speaker's location.)[1]

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[1] Within Bennett's (1972) framework (cf. § 2.4), the semantic representations corresponding to 162.a. and 162.b. would be, respectively, 1. and 2. below (TRANSVERSE presumably collapsing the structure corresponding to "from one side of...to the other side of..."):

1. LOCATIVE (PATH (LOCATIVE (TRANSVERSE (LAKE))))

2. LOCATIVE [(PATH (LOCATIVE (TRANSVERSE (LAKE))))
(SOURCE (LOCATIVE (X)))]

The additional structure in 2. corresponds to 'from here' in 160.c.'. However, it is not at all clear from such a formalism what logical connection this constituent has with any other element within the square brackets or with the initial LOCATIVE. More distressing, however, is the fact that, apart from this additional configuration, the two representations are identical and hence go no way towards characterizing the difference between the extensional and the locational interpretations. As we mentioned in § 2.4, Bennett's formulae leave a great deal of semantic structure implicit and intuitive and are perhaps satisfactory only if they belong to some 'stratum' considetably nearer to that of the lexotactics.

162.a. can be glossed as "mist is in existence at all points in the space which begins at/along one side of the lake, ends at/along the other side of the lake and is in existence at all points in between". 162.b. has the gloss "mist is in existence at the place at which ends the interval beginning at (a point on) one side of the lake and which ends at (a point on) the other side of the lake".

7.3.3 Negation and quantification

Before continuing with our discussion of other existential structures, we must make clear how negation and quantification are to be treated within our framework. Both of these logical elements can, we feel, be given a natural interpretation in terms of the existential locatives we have made use of so far.

In particular, we propose to interpret the negation operator (cf. our use of NEG in 142.) as a locational predicate, namely in $\overline{E}$. In fact, this treatment of negation is a direct outcome of the extension in the preceding section of our existential structures X in E, X in $\overline{E}$, and the defined existential structures X into E and X out of E to contexts in which X stands for a situation, i.e. a second-order entity. Thus, in 151.e. below,

151. e. Only at one or two places between Fountainhall Road and West Mains Road is Mayfield Road not bumpy

non-existence is predicated of the proposition "Mayfield Road (be) bumpy" and this existential locational relation is spatially restricted to one or two places within a particular interval. However, the negative element is as often interpreted as binding

the locative, be it spatial or temporal (cf. our discussion of 'continue' above). We may therefore ask what interpretation can be given to <u>in E</u> and <u>in $\overline{E}$</u> when they are predicated of a structure already containing specified spatial and temporal locatives, i.e. a structure which is a (spatially and) temporally specified proposition (cf. fn. 1 p. 285). Such propositions can be asserted as being true or as being false, and if truth can be identified as location in an intensional world (or in a model of the actual world) then <u>in E</u> and <u>in $\overline{E}$</u>, when predicated of such fully specified propositions, can be interpreted as "is true" and "is false", respectively.

This outline of the relationship between existence/non-existence (of objects and situations) and truth/falsity (of propositions) is necessarily over-simplified (cf., for example, Kahn's (1973) discussion of the existential and veridical uses of the verb 'be' in Ancient Greek), but it will be sufficient for our present purposes. All we have tried to do is suggest that a localist framework presents the possibility of relating these semantic and logical elements in a non-arbitrary fashion. Let us now consider the role of <u>in E</u> and <u>in $\overline{E}$</u> in explicating the logicians' use of the quantification operators $\exists$ and $\forall$ which we incorporated in some of the semantic representations given in the preceding discussion.

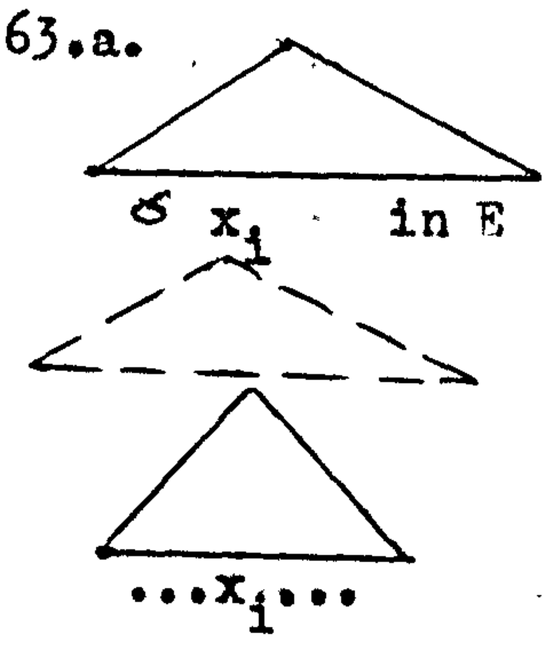
Once some kind of existential predicate or, in our terms, an existential locative, is found to be necessary in natural-language contexts other than simply those involving such expressions as 'a/some', 'none', 'all', etc., the introduction of the logicians'

quantificational operators $\exists$ and $\forall$ to account for these latter is not only superfluous but also rather misleading. In the first place, the relationship between $\exists$ and $\forall$, on the one hand, and non-quantificational uses of, say, <u>in E</u> are obscured. Secondly, $\exists$ (and $\forall$) conflate two separate notions, namely, the idea of an entity being in existence and that of a subset of a set (or of a member of a set or of a part of a whole), i.e. essentially a partitive relation, which latter is itself needed independently of existential structures. A subset of a set can vary according to whether, for example, the subset has a magnitude equal to one or a magnitude greater than one (cf. 'a/some boy' versus 'some boys') or, again, according to whether the superordinate set is itself a subset of a larger set (cf. 'some boys' versus 'some of the boys'). Furthermore, not all partitive relations involve set-subset relations: those which are realized by constructions with a mass noun (cf. 'some cheese', 'some of the cheese', *'a cheese' (unless a variety of cheese is meant), 'a piece/lump/quantity of cheese') involve part-whole relations (cf. Goodman, 1966; Dik, 1972).

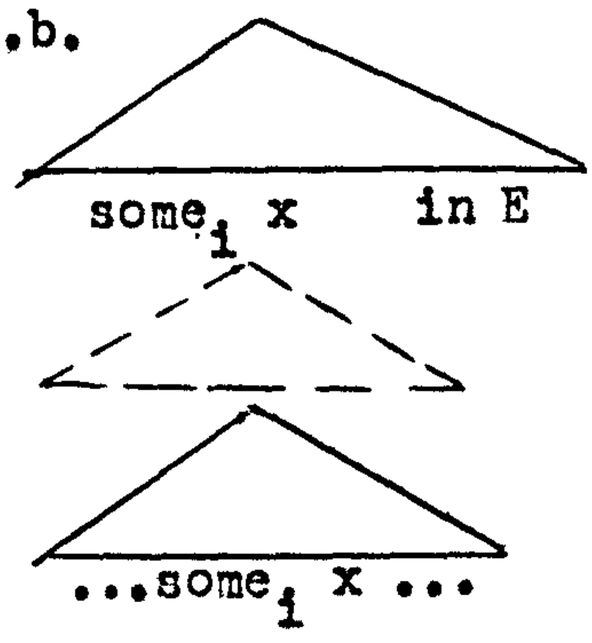
It is entirely beyond the scope of the present study to go into a detailed analysis of these different quantificational constructions. For the purposes of this study we will adopt a somewhat simplified version of Anderson's treatment of existential (and universal) quantification (cf., for example, Anderson, 1973b, 1973f, 1973g, 1974a), which involves such a distinction between the existential predication and the quantifier (i.e. partitive)

phrase and which explicitly treats the existential element as locational. Letting σ abbreviate the partitive component, we will adopt the general scheme in 163.a. for so-called existential quantification, this corresponding to Anderson's (1974b) representation given (in simplified form) in 163.b. Our decision to

163.a.

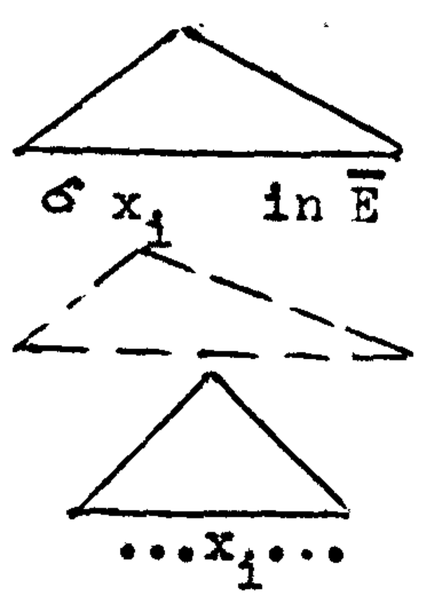


163.b.



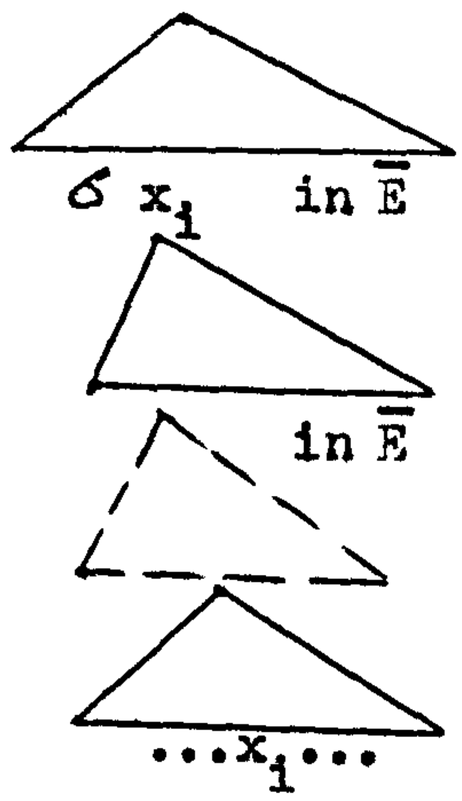
give a referential index to x rather than to σ/some, which latter element stands for "a subset/member/part of", and most appropriately carries the referential information, is of no theoretical or descriptive significance and has been made simply to bring the formalism somewhat more in line with traditional notation and, in particular, with our manner of representing formulae bound by the iota operator. 163.a. can be read as "some x, such that ...x..., is in existence". The dotted triangle allows for intervening structure. The representation of quantifier phrases containing 'no'/'none' follows directly from 163. with $\overline{E}$ replacing E.

164.



What now of universal quantification, i.e. of phrases containing 'all', 'every', etc.? In Anderson (1973b, 1973f, 1973g) syntactic arguments are given for analyzing 'all' as realizing a structure like 164. but with an additional negative (in $\overline{E}$) intervening between the upper and lower sub-configurations containing the quantifier phrase, as in 165. This structure can be glossed

165.



as "no x_i exists for which it is not the case that...x_i...." Such an analysis is in accordance with the often observed equivalences involving existential and universal quantifiers such as those in 166., but it makes the additional claim that only one of the

166.a. $\sim(\forall x)P(x) \equiv (\exists x) \sim P(x)$

b. $\sim(\exists x)P(x) \equiv (\forall x) \sim P(x)$

c. $(\forall x)P(x) \equiv \sim(\exists x) \sim P(x)$

d. $(\exists x)P(x) \equiv \sim(\forall x) \sim P(x)$

quantifiers is linguistically basic or primitive, namely the existential quantifier, and that the other is derived from it.

Such a decompositional analysis of 'all' not only reduces the number of primitives needed in our semantic description but also makes universal as well as existential quantification amenable to

an intuitively appealing description in terms of independently motivated constructs, namely existential location and partitive relations. For these reasons, we will adopt the analysis of 'all' as presented in 165. (In general, we will not be considering the differences between 'all' and such other 'universal' quantifiers as 'every', 'each', 'any').

Although we have therefore abandoned the traditional analysis and representation of the logical quantifiers, we will continue to make use of the iota operator ($\iota x{:}f(x)$) in its usual interpretation of implying (or presupposing) existence and uniqueness of reference of the variable within its scope (cf. Lyons, 1973, for suggestions as to how these two elements of meaning inherent in most uses of 'the' can be analyzed as deriving from its underlyingly deictic structure).

7.4. Temporal location and extension

7.4.1 Preliminary remarks on linguistic time

Before proceeding with a discussion of directional existential structures, especially those corresponding to existential causatives, it will facilitate matters if we first elaborate somewhat upon our characterization of a (concrete) spatial journey as developed in § 7.2. To do this, however, we must consider in detail the temporal dimension which is involved in such constructs and which we have, up to now, left implicit. More particularly, we must examine the parallels to physical location and extension which exist in the temporal domain.

For our present purposes we can operate with a minimal and more or less uncontroversial characterization of time as it is

structured by and reflected in our use of English. The analysis to be put forward is not set out in detail and there are few supporting arguments because the proposals have been discussed and motivated in such studies as those of Bull (1960), Leech (1969), and H. Clark (1973) (cf. also Fillmore, 1972; and, for French, Pottier, 1962), and we feel it is unnecessary to repeat their arguments and analyses here.

Essentially then, we operate with the notion of time in terms of a one-dimensional entity of infinite length. This linear structure we will refer to as the time or temporal axis, T. We shall assume a discrete model of time for the purposes of this study, and hence T can be represented as an interval composed of an infinite number of temporal moments or points, t, as in 167.

167. $T = \{\ldots, t_{-1}, t_0, t_{+1}, \ldots\}$

Formula 167. also incorporates the fact that the time axis is polarized. We need not concern ourselves at the moment with the nature and source of this polarization, but the fact that one exists makes it possible to meaningfully apply the dyadic ordering relation </> to pairs of elements in T. Although there are difficulties in reconciling the 'spatial metaphors' underlying our use of 'before'/'after' (cf. especially, H. Clark), their dominant interpretation with respect to a polarized time axis is that in 168. which assumes that the 'future' is positive with respect to the

168. a. 't_i before t_j': $t_i < t_j$

b. 't_i after t_j': $t_i > t_j$

'past'.[1]

Furthermore, T can be partitioned, i.e. segmented into a set of sub-intervals. The calendar system is based on a process of partitioning whereby the sub-intervals of a partition of T are of equal measure. For example, T can be fully segmented into a set of year-length intervals or into a set of lunar months. Larger-sized intervals can be obtained by the sequencing of a subset of such intervals (e.g. a century is a series of one hundred years) and smaller intervals by a repeated process of partitioning (e.g. a lunar month can be partitioned into four week-length intervals, a week into seven day-length intervals, and so on). However, certain arbitrary discrepancies (deriving from the fact that our month is not a lunar month) have been incorporated into our standard (Gregorian) calendar system and this upsets the ideal process of partitioning into sub-intervals of equal measure (cf. Bull, 1960, for some discussion).

So far, we have characterized what might be called a 'temporal yardstick', a linear measure which could be applied to a situation

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[1] This interpretation is no doubt reinforced by the fact that these terms are also used to order numbers according to their magnitude and this numbering system plays a crucial role in our calendar and clock systems, the larger-numbered years, for example being closer to or further in the future than the smaller-numbered ones (presuming, of course, that negative numbers and years B.C. are analogous). However, even in our counting system there is a mixture of metaphors: in counting from five to ten one reaches five before getting to ten or, alternatively, five comes (to the counter) before ten. We shall be discussing in somewhat more general terms below this phenomena of distinct but equivalent alternatives of conceptualizing certain dynamic, directional situations.

to measure its 'temporal extension' or to measure the 'temporal distance' between it and another situation (of course, we have yet to make explicit what we mean by these terms) but in no way can it give the direct temporal location of a situation. What is necessary is for such a temporal measuring rod to be anchored to or incorporated into a series of specific events--actually, one unique event will do. In the case of our calendar system, the birth of Christ is the unique event which establishes an absolute system which, with the numbering system alone, would be sufficient to assign direct locations to all preceding and following situations. However, although this means is used to identify specific years, specific days of the month, and specific clock intervals and points, a significant portion of the burden of absolutely locating situations is carried by the cyclic systems of so-called calendar-unit names. These comprise the names of the months of the year and of the days of the week and, in a similar but distinctive fashion, the names of the seasons and the names for the divisions of the day. And, of course, there are also the named holidays. However, although one speaks of 'names' in this connection, as if 'April', 'Tuesday', 'Summer', and 'Christmas' were proper nouns, it must be remembered that they function as such, i.e. with unique-ness of reference, only when coupled with further indication of the location of the interval in question with respect to the absolute time axis (e.g. 'January, 1974', 'the first Tuesday of March, 1963', 'Christmas, 1972', 'the Summer of '41') or, as is most usually done, when related to the moment of utterance, which is the other means of anchoring our temporal yardstick.

/The deictic time axis, centred on the moment of utterance, is independent of the absolute one; but it can be put into correspondence with it by the truthful assertion of or assent to such propositions as that expressed by 169. and 170. Bull (1960:

169. Yesterday was / Today is / Tomorrow is } the 21st of June, 1974

170. It's now 1:00 a.m. the 21st of June, 1974

10), in fact, claims that without the possibility of making such 'equational' statements, the absolute calendar system has no practical application: "we cannot make use of the Gregorian calendar until we are able to establish an equation in which the time intervals of this calendar are identified with their equivalents in a personal /i.e. deictic/ calendar system. Until we know the Gregorian calendar label for "today", the public calendar is useless, and if we cannot define "today", that is, if we do not have a personal calendar, we end up in an asylum".

Once a point or, more germanely, a named interval of the absolute temporal system is located at or around the time of utterance (even such an 'incomplete' statement as 173. will do), then it is again possible to use the calendar names in uniquely

173. It's Tuesday/October/Spring

referring expressions. The deictic element may be made explicit by the tense (or modal auxiliary), as in 174., and/or by some

174. John { will arrive / arrived } on Tuesday

modifier such as 'next', 'last', 'past', 'this', as in 175.[1]

175. a. John will arrive {this / next} Tuesday

b. John arrived {last / this (past)} Tuesday

However, the deictic time system can be used independently of the absolute system. It contains its own proper names ('yesterday', 'today', 'tomorrow') as well as the means of uniquely referring to an unlimited number of other intervals by means of specifically deictic elements in combination with the simple expressions for the intervals (and multiples thereof) on our non-anchored temporal ruler (e.g., 'two days ago', 'in three minutes', 'five years from now', 'the year before last', etc.) or with expressions denoting subjectively measured intervals (e.g., 'a moment ago', 'in a short while').

7.4.2 The verbs of aktionsarten, 'last', and durational adverbials

Let us now proceed to a more explicit consideration of the interplay of temporal expressions and existential constructions. A particularly interesting manifestation of the semantic and formal parallels which exist between expressions of spatial and temporal location, especially in the case of prepositional phrases, in which the spatial or temporal function is determined with respect to what kind of entity--spatial, temporal, or both--the object noun

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[1] For a full discussion of the intricacies and variability involved in the interpretation of such expressions, cf. Leech, 1969; Fillmore, 1972.

phrase denotes (cf. §4.2, §5.2.1), are the existential verbs which we discussed in §7.3.1 with reference to physical objects and simplex situations such as that described by 'Mayfield Rd. be bumpy'. When applied to constructions describing second-order entities and when assigned temporal rather spatial adjuncts, these verbs function in an identical fashion, identifying in this case different stages or phases of the entity's existence along the linear dimension of time--i.e. what have come to be called the different aktionsarten of inception, continuation, cessation, termination. Thus, we may compare the following sentences with those of 132. to 134. Leaving aside for now the verb 'finish'

176. a. The students' demonstration began at 11:00

b. The students began their demonstration at 11:00

c. The students began demonstrating at 11:00

177. a. The students' demonstration stopped at 1:00 but {resumed / continued} at 2:00

b. The students stopped their demonstration at 1:00 but {resumed / continued} it at 2:00

c. The students stopped demonstrating at 1:00 but {resumed / continued} at 2:00

178. a. The students' demonstration continued for two hours and {finished / ended} at 3:00

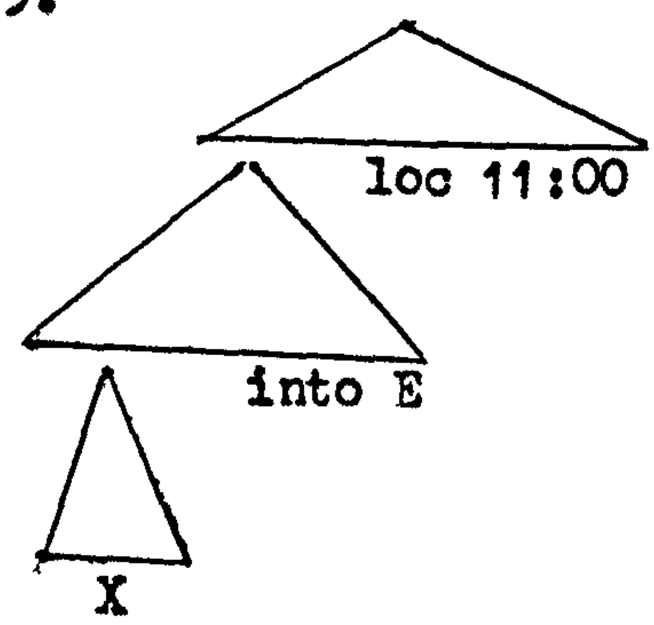
b. The students continued their demonstration for two hours and {finished / ended} it at 3:00

c. The students continued demonstrating for two hours

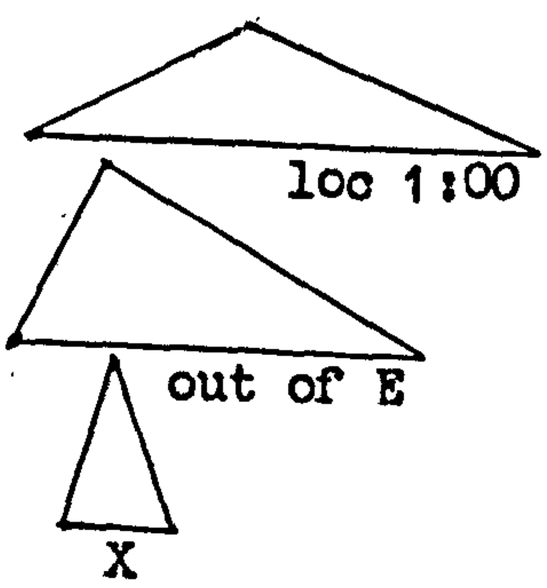
and $\left\{\begin{matrix}\text{finished}\\ \text{?ended}\end{matrix}\right\}$ at 3:00

(since its interpretation depends on the logical structure of extended journeys), we can see that the definitions given in § 7.3.2 for the complex semantic predicates underlying 'begin', 'stop', 'continue/resume' 'continue_2' and 'end' apply equally well here, except that the superordinate locatives are temporal rather than spatial. Ignoring the superficial and semantic differences, if any, between the a., b., and c. variants, the underlying structures of 176., 177. and the first conjunct in 178. are given in 179. through 181. respectively, where X stands for a temporal

179.



180.



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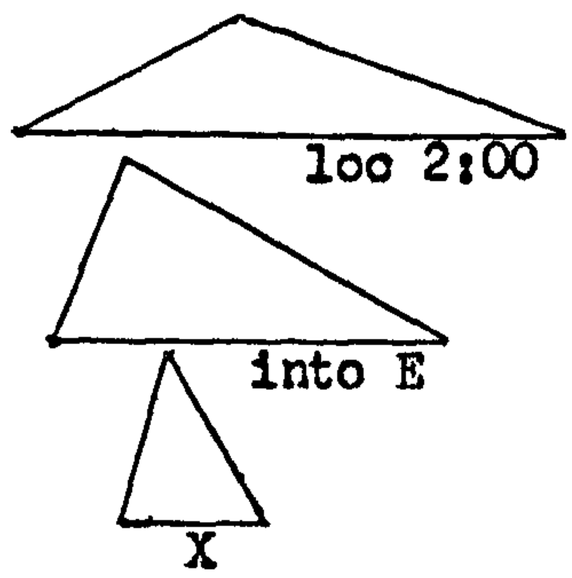

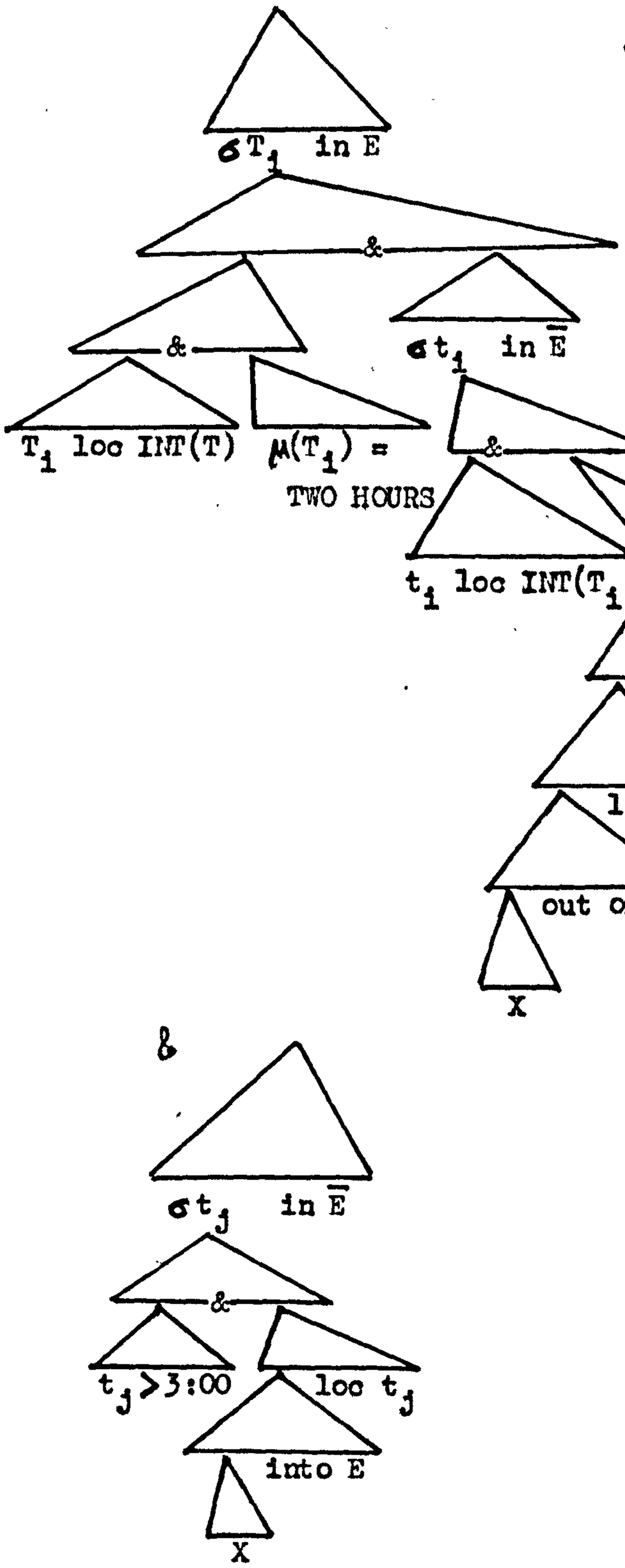

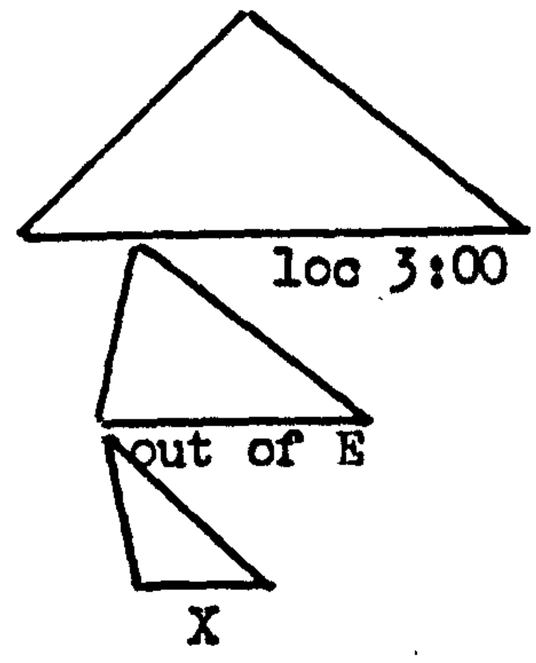

entity, i.e. the demonstration (by some students). The simple inceptive structure in 180. is sufficient for the representation of the re-inceptive use of 'continue' since it is already conjoined with a structure which implies the prior existence of X, which is the contextual requirement for 'continue'/'resume'. The first

conjunct of 181. differs from 143. only in the reformulation of negation and the universal quantifier as discussed in the previous section. (Instead of having to specify the existence of a linear set of points as in 143. it is sufficient, given the unidimensionality of the time axis, to simply specify the existence of a subset T_i of T.) This whole conjunct may be glossed as "there exists a subset $\mathbb{T}_i$ of the temporal axis T measuring two hours and such that it is not the case that it is not the case that at t_i X ceases, i.e. such that for all points t_i in T_i it is not the case that X ceases at t_i". The third conjunct in 181. specifies the contextual requirement for the use of 'end' in contrast to 'stop', namely that there is no following time at which X exists.

In addition to sentences such as 176. to 178., we have those in 182. and 183. which parallel sentences 124. and 146./147. Thus, whereas 'extend' is the general verb of physical extension,

182. The students' demonstration lasted from 11:00 to 1:00 and from 2:00 to 3:00

183. The students' demonstration lasted for (a period of) three hours

so 'last' is the general verb of duration, i.e., temporal extension: both involve the ascription of existence to an entity at all points in an interval of a particular measure or with particular beginning and ending

points.[1] And, just as it was suggested that 146./147. have very similar underlying structures to those of 148./149., so too for

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[1] Thus, we feel that there has been a certain amount of confusion in discussions of the parallel between temporal and (concrete) spatial expressions involving such prepositions as 'from', 'to', 'for' insofar as the proper 'spatial metaphor' has not been identified. Lyons (1968a: 300), for example, remarks that "as location is to motion, so being in a certain state or condition is to change into (or from) that state or condition: in other words, there is a notional parallelism between such static expressions as '(be) in London', '(happen) on Tuesday', '(be) a teacher' and their dynamic counterparts '(go/come) to London', '(last) until Tuesday', '(become) a teacher'." What is misleading here is the identification of 'locational'/'directional' with (one manifestation of) 'static'/'dynamic' (cf. our remarks in § 4.2). 'Happen on Tuesday' or, more precisely, a sentence such as 1., is certainly not static: it describes a dynamic

1. The car accident happened on Tuesday

situation but one located on Tuesday. Conversely, 'last until Tuesday' does not necessarily describe a dynamic construction--cf. 2.--but does involve a directional expression of temporal

2. My headache lasted until Tuesday

extension (for the analysis of 'until', cf. § 8.4). Thus, the confusion rests in seeing in 3. rather than in 4. the concrete spatial analogue of a sentence such as 5. It is not necessary to invoke some such notion as a 'temporal journey' in order to account

3. John went from Crianlarich to Tobermory

4. It was foggy from Crianlarich to Tobermory

5. John was asleep from noon to midnight

for the distribution of 'from...to...' in 5. Although there is, as we shall see, some motivation for treating the notion of 'journey' as applicable to the temporal domain, this can only be treated as an incomplete spatial metaphor, for any attempt to treat it systematically leads to a paradox.

183. and 184. below. However, another variant exists in the case

184. The students' demonstration was three hours long

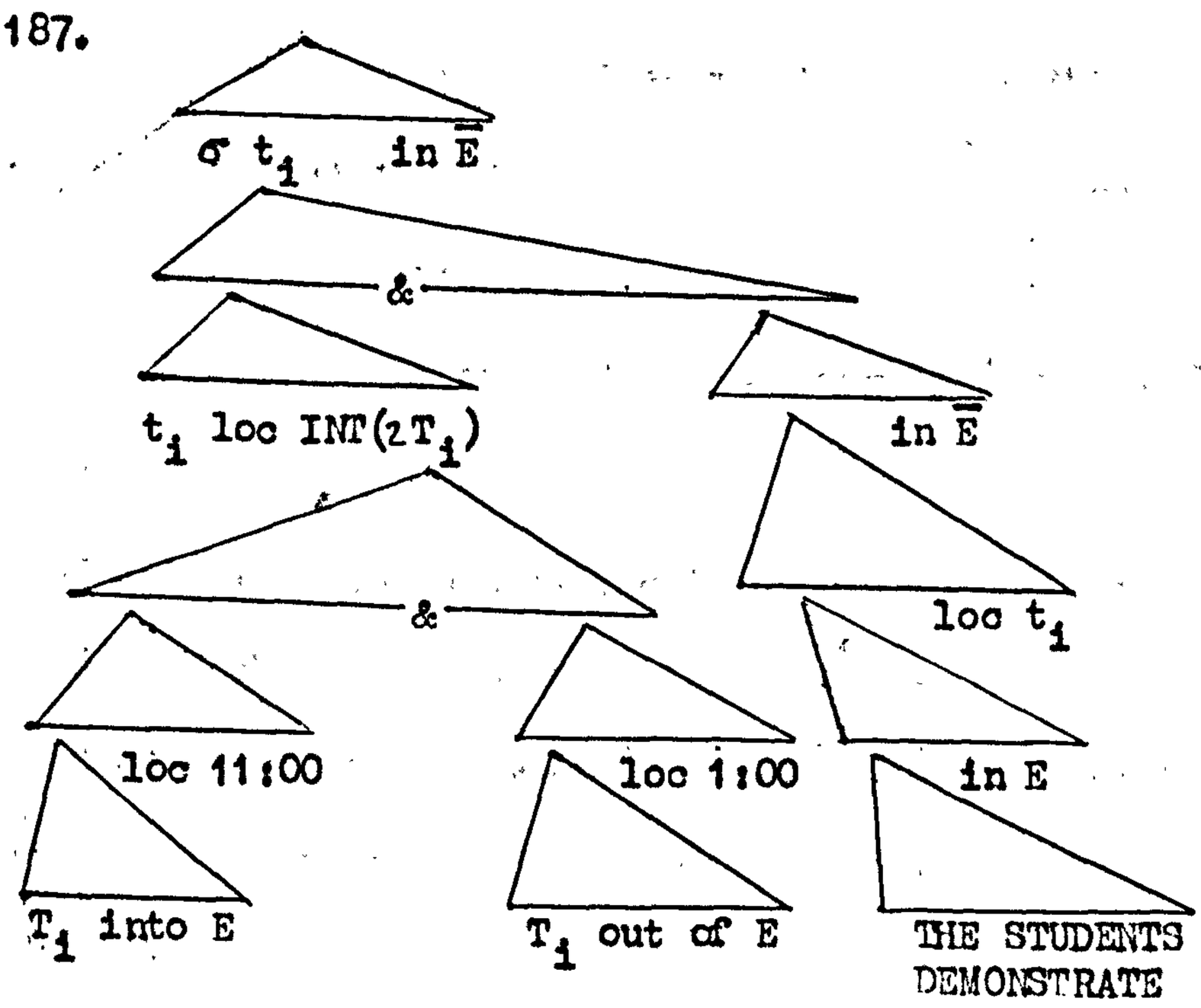
of temporal extension, namely, the more usual constructions involving an adverbial adjunct to a full sentential structure, as in 185. and 186. These we will assume to have very similar, if not identical,

185. The students demonstrated from 11:00 to 1:00 and from 7:00 to 3:00

186. The students demonstrated for three hours

underlying structures to 182. and 183., respectively. The common underlying structure for 182./185., for example, would be that in 187. (ignoring tense and considering, for simplicity, only one of the temporal 'from...to...' phrases). 187. can be glossed as

187.



"there is no time t_i in the interval (T_i) which begins at 11:00 and ends at 1:00 such that it is not the case that at t_i it is the case

that the students demonstrate." This analysis will be slightly modified in §7.4.4.

7.4.3 Existence in time of first-order entities

As somewhat of an interlude, let us examine the temporal uses of in E, into E and out of E with first-order rather than second-order entities. Consider first, the following sentences which involve inanimate entities. We see that although temporal

188. The Cairngorms {came into existence / appeared (on the face of the earth)} before the Cuillins

189.a. The Cairngorms have existed for a longer time than the Cuillins

b. The Cairngorms have had a longer existence than the Cuillins

c. The Cairngorms are older mountains than the Cuillins

190. The Zechstein Sea {went out of existence / disappeared (from the face of the earth)} about 40 million B.P.

191. Glaciers existed in Scotland roughly from 10,800 to 10,300 B.P.

existence and extension can be ascribed to such entities, no special set of aktionsarten verbs is employed. Of special interest is the relation between 189.a. and 189.c. which in some respects parallels that between 146./147. and 149./150. and that between 183. and 185. However, it differs from these in the change of tense involved--from inclusive to non-inclusive. This reveals that 'young'/'old' are relative terms in the sense that they presuppose a temporal reference point: if the inclusive--non-inclusive tense

change is not involved, then this reference point must be made explicit by other means. Thus 193. is unacceptable without its 'when-' clause. (In somewhat different terms, 'young'/'old' are

192. The Zechstein Sea existed for a long time

193. The Zechstein Sea was old when it ceased to exist

positional or locational existential terms in contrast to 'short'/'long' which are true extensional terms (cf. H. Clark, 1973).) Since age is thus tied to T and hence continually increases with T, the time at which a certain age is ascribed to an object must be implicitly given.

The pattern is much the same for classes of animates except that (1) as an alternative to 'go out of existence', one has the equivalent 'go {extinct / into extinction}' (recall the equivalence relation in 139.) and (2) the verb 'last' becomes applicable in some contexts:

194. Dinosaurs {came into existence / appeared (on the face of the earth)} during the Jurassic Period

195. a. Reptiles have existed for a longer time than mammals

b. The nautiloids have {?out-lived / lasted longer than} the ammanoids

c. Reptiles are an older group of animals than mammals

196. The ammanoids {went into extinction / went out of existence / disappeared (from the face of the earth)}

during the Cretaceous Period

For (individual) animates, the verb 'live' or the adjective

'alive' usually appear in the place of 'exist', and 'life' in the place of 'existence'.[1] Furthermore, 'last' is again applicable.[2]

---

[1] 'Live' and 'be alive' are, of course, not synonymous in all contexts: 'live' has a wider application in that it can take on nuances of a habitation (cf. 'be living in a flat'/'?be alive in a flat') or of active participation in or supervision of one's existence (cf. 'live well', 'live dangerously', 'live a full life').

However, more perplexing is the fact that 'be alive' is not simply a contextual variant of 'exist'--i.e. it is certainly an oversimplification to identify animacy with spatio-temporal existence: a dead tree is still a spatio-temporal entity and even, perhaps, still a tree. Unfortunately, we must leave this thorny (and part philosophical) problem to the side (cf., however, Kahn's (1973) discussion of the "vital" use of the Greek verb 'be').

[2] 'Last' can most likely be interpreted as always applying to second-order entities if sentences with what appears to be a first-order nominal as subject of 'last' are analyzed as involving an additional existential locative immediately above the first-order nominal. Thus, the ambiguity of a sentence such as 1. below, which can be

1. Nixon won't last long

understood, for example, in either the sense of 2. or that of 3.,

2. Nixon won't last long in view of his thrombosis
3. Nixon won't last long as President

is explicable if, in the first interpretation, in E is predicated of Nixon in E while in the second in E is predicated of Nixon (be) President. However, in these cases, 'last' seems to imply more than just being in existence, especially in the case of the first interpretation, in that some reason to expect the subject not to remain in existence for much longer is presupposed. This added element is perhaps relatable to the double (and redundant) existential predicate.

We may also note that just as we speak figuratively of the life of a battery, of a tyre or of a pair of shoes, so we can speak of such objects as lasting for a certain time and even of them dying. In E in these contexts appears to be superordinate to an abstract locational relation such as "be in a servicable condition". We also speak of food or petrol lasting for shorter or longer intervals of time. Here, it is required only that at each moment in the interval part of the food or petrol exist. The equivalent of 'be dead' is such cases is 'be all gone'.

Finally, with animals but not plants 'be born' (or, according to one's beliefs, 'be conceived'), can lexicalize <u>into E</u>; with both plants andanimals 'die' can lexicalize <u>out of E</u>; and 'survive' appears to lexicalize the negation of <u>out of E</u> under much the same conditions as associated with 'continue'.[1] These possibilities are illustrated in 198. to 201.

198. The child {came into existence / came into the world / was born / was conceived} on Christmas day

199.a.The camel can {live / last / survive} for a long time without water

b.John {lived / lasted / survived} for several more years after the operation

c.John was very old when he fimally died

d.John had a long life

200. The plant died after a few weeks

201. Einstein lived from 1879 to 1955

7.4.4 <u>Bounded versus unbounded entities and progressive aspect</u>

We must now take up again and improve upon an analysis made earlier in this chapter. So far, we have not distinguished between the following pairs of sentences, which we wish to suggest differ in similar respects. The obvious superficial difference between 202.a.

---

[1] However, 'survive' is not limited to animate subjects--cf. 1.

1. The house survived the hurricane

202. a. The fog patch extends from St. Andrews to Aberdeen

b. There's fog / It's foggy } from St. Andrews to Aberdeen

203. a. The students demonstrated from 11:00 to 1:00

b. The students were demonstrating from 11:00 to 1:00

and 202.b. is that between a definite and count noun phrase and an indefinite and mass noun phrase. The indefinite/definite distinction is irrelevant to the point we will be making--202.a.'

202.a.' A fog patch extends from St. Andrews to Aberdeen would do just as well. However, the count/mass distinction is responsible for a certain, admittedly subtle, discrepancy in the implications of 202.a.' and 202.b. The a. sentence implies not only that the fog exists at all points in an interval from St. Andrews to Aberdeen, it also implies that it doesn't exist at points before or after the interval. That is, the fog patch comes into existence at St. Andrews and goes out of existence at Aberdeen. The b. sentence, on the other hand, lacks this second implication although the same or equivalent information might be supplied by a conversational implicature (cf. Grice, forthcoming) to the effect that the speaker will be maximally informative within the constraint of being relevant; if he knows that there is fog from Dover to Caithness and that this is important to the speaker, it would be assumed that he would say so. Now this difference in the implications of 202.a. and 202.b. is explicable if one adopts some such characterization of the count/mass distinction as Allen's (1966) whereby the essence of being countable is being bounded. But for something to be bounded means that it

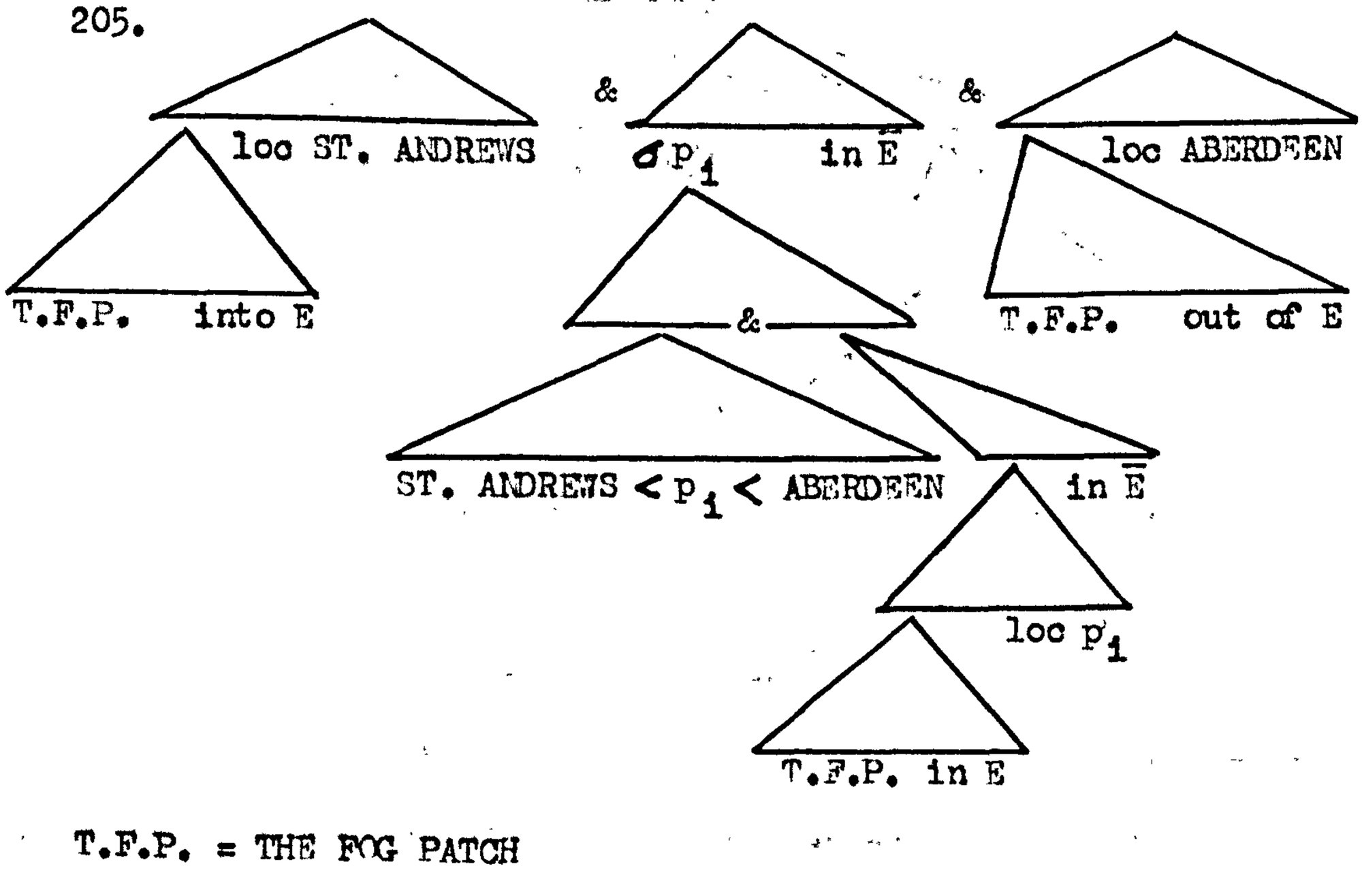
has a beginning and end. Thus, we get an anomaly if something with a beginning and an end doesn't extend all and only the way between these bounds:

204. *The highway from Banff to Jasper extends halfway to Jasper

The only interpretation which could be given to 204. is that the highway which <u>is to</u> extend from Banff to Jasper is only half finished.

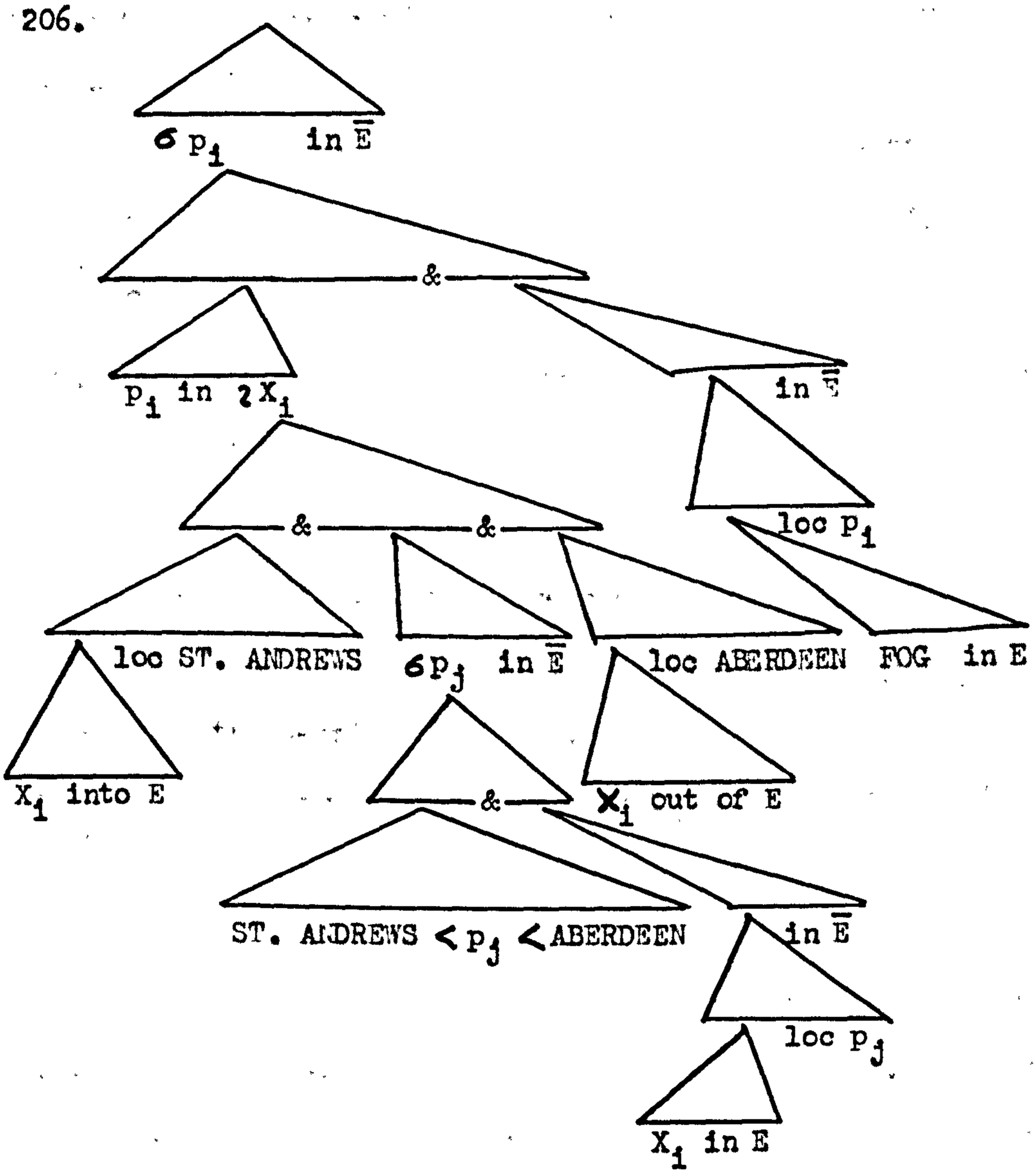
We propose to represent the difference between 202.a. and 202.b. in the following manner: the structure underlying 202.a. is given in 205., that underlying 202.a. in 206.

205.



T.F.P. = THE FOG PATCH

206.



205. is to be read as "the fog patch comes into existence at St. Andrews and goes out of existence at Aberdeen and there is no point p_i between St. Andrews and Aberdeen such that it is not the case that the fog patch exists at p_i (i.e. the fog patch begins at St. Andrews, ends at Aberdeen and exists at all points between St. Andrews and Aberdeen)". 206. can be glossed as "there is no point p_i in the stretch beginning at St. Andrews, ending at Aberdeen and existing at all points in between such that it is not the case that the fog patch exists at p_i (i.e. the fog patch exists

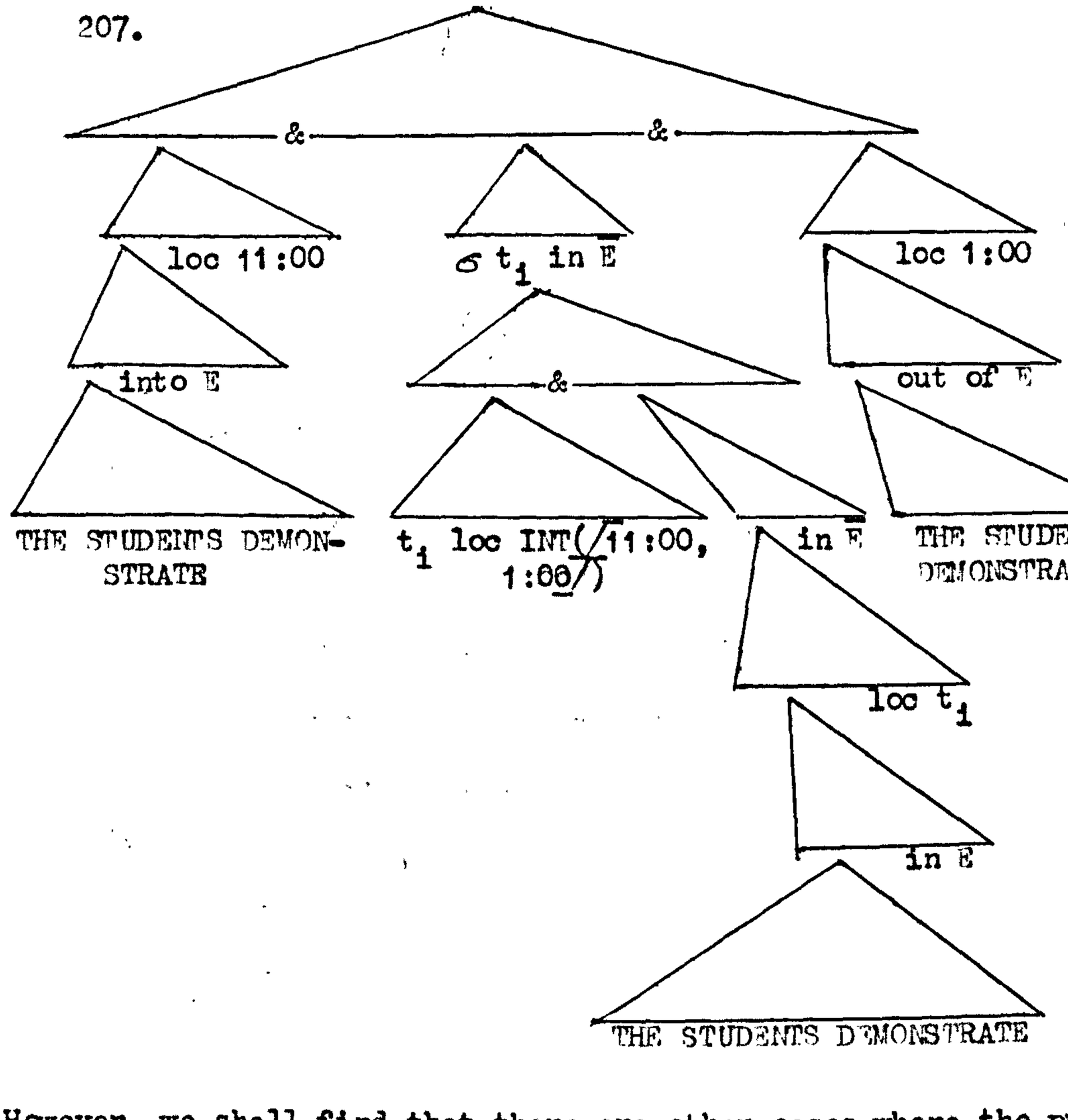
at all points in the interval beginning at St. Andrews and ending at Aberdeen)".

If we look now at 203.a. and b. we find a similar difference in implication:203. a.: implies 203. b. but also implies 203. c. The superficial difference between the two is that between the

203. c. The students began demonstrating at 11:00 and stopped at 1:00

non-progressive and the progressive form. The former has often been correlated semantically with "complete(d) event", "event seen in its entirety" and that is precisely the element of meaning which 203. c. adds to the meaning of 203. b. and which is lacking in 203. b. alone. The progressive form simply locates the situation in E at or for the given time but says nothing of its inception or cessation, i.e. its temporal boundaries. Thus, for students to have demonstrated is a bounded situation, for students to have been demonstrating a non-bounded one. We are suggesting, therefore, that the non-progressive form, although superficially the unmarked form, may be semantically marked with respect to the progressive form. Thus, we were wrong to assign 187. as the underlying representation for 185. (= 203. a.); rather it is the underlying representation of 203. b. while 207. below is that of 185. (= 203. a.).

207.



However, we shall find that there are other cases where the progressive form is semantically marked--in particular where the situation being described has inherent boundaries, i.e. ones which are not simply arbitrary beginning and ending temporal locations.

So far we have treated <u>in E</u>, <u>into E</u> and <u>out of E</u> as accompanied by temporal locatives and as predicated of inanimate and animate objects or of situations which have been dynamic (which property is yet to be explicitly characterized). It remains to examine how they behave--i.e. how they are realized--when predicated of static situations, i.e. what we have suggested are locational relations of some kind. However, this will lead us directly into

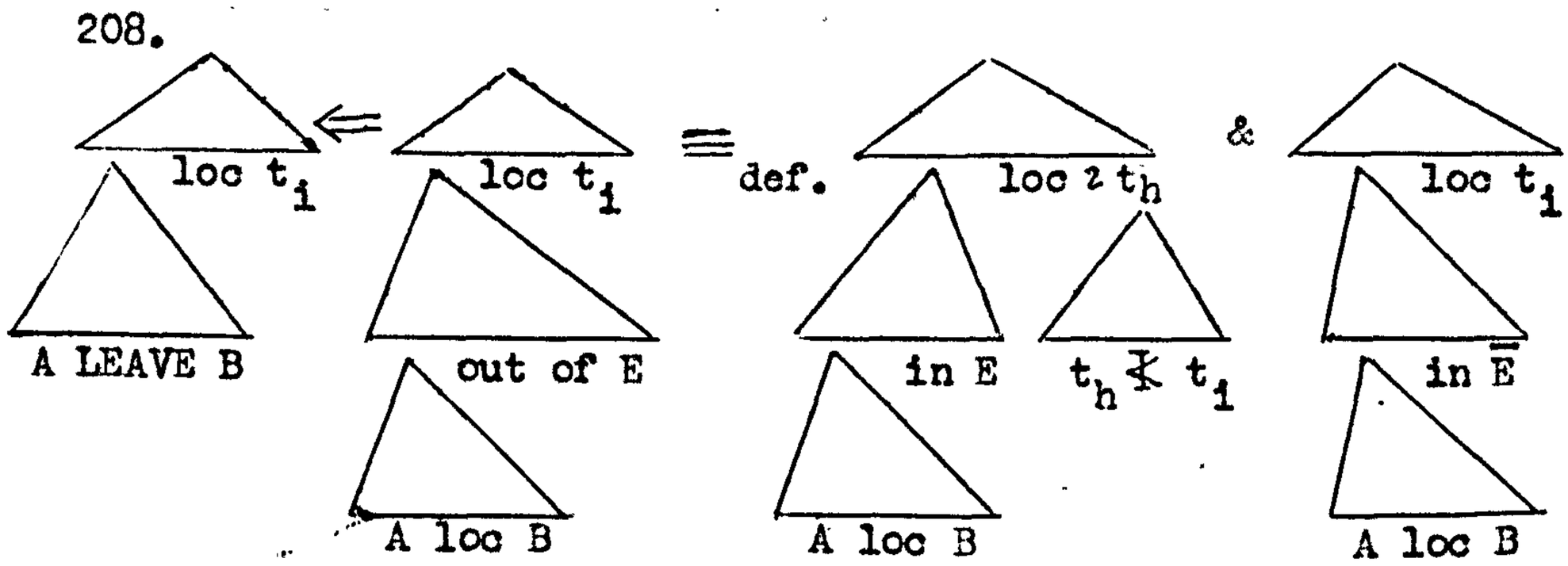
a re-consideration of the logical structure of journeys; so let us now turn our attention to this problem.

7.5 A formal characterization of extended journeys and border-crossings

7.5.1 Border-crossings and directed movement

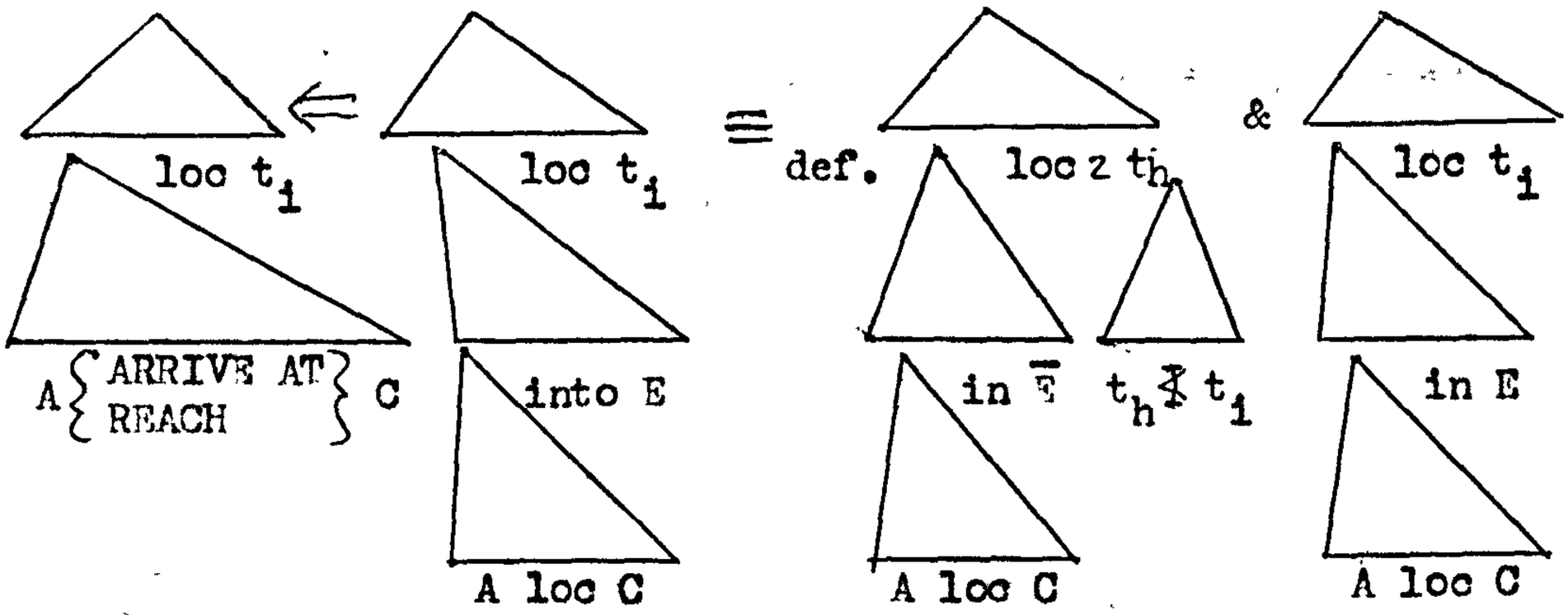
We may begin with the observation that when we moved from the application of into E and out of E with nouns of spatial extent as subject plus spatial locatives to their application with situations as subjects and temporal locatives, we inasmuch made explicit the notion of a border-crossing, the transition from one location to another, in the special case where the two successive locational relations are that of a dynamic situation being in existence, and then in non-existence or vice versa. Now, we may generalize this to include the simpler case of existence and non-existence of static situations, i.e. concrete and abstract locational relations. Thus to leave B is to be at one moment at B and the next moment not at B, i.e., for A loc B to go out of existence--cf. 208. (where $\Rightarrow$ can be read as "is lexicalized as"). Similarly, we can define A

208.



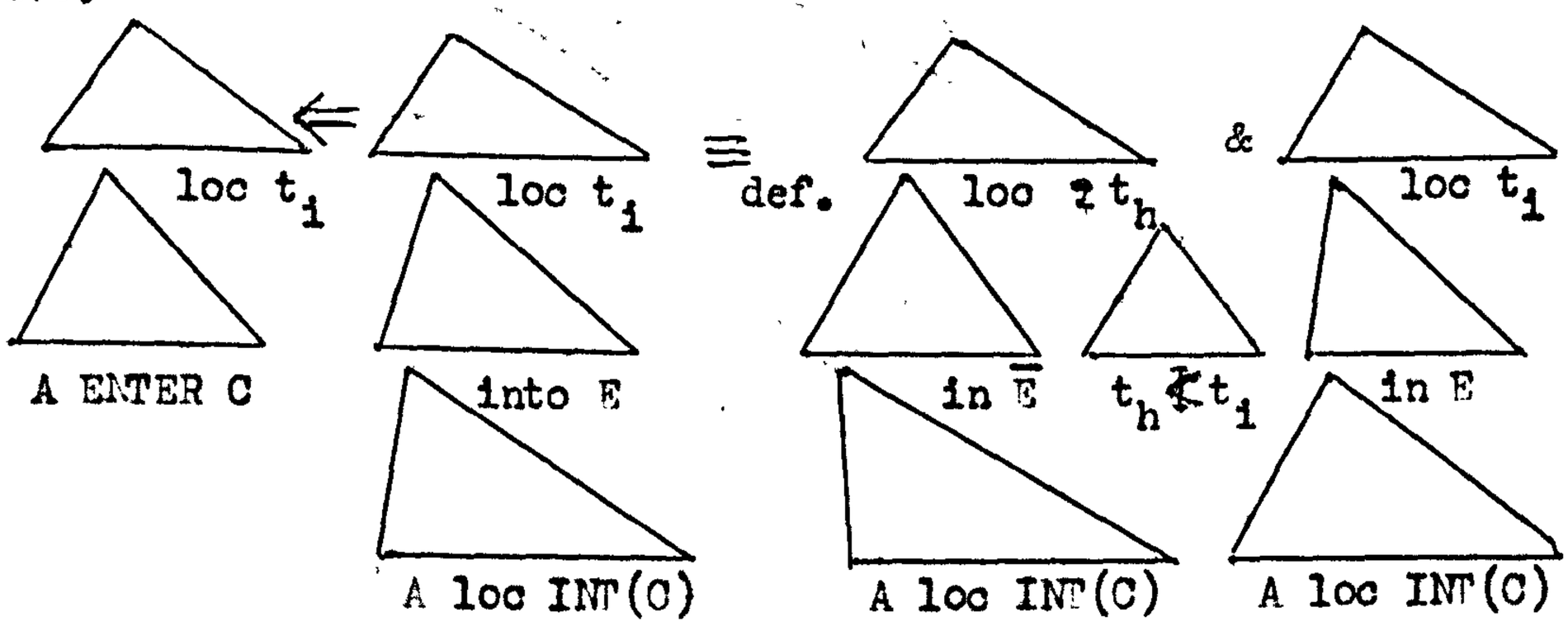
arriving at C or A reaching C as the coming into existence of the locative relation A loc C--cf. 209.

209.



'Enter' differs from 'arrive at'/'reach' in that the final locational relation is <u>A loc INT(C)</u> (i.e. 'A in C'), rather than <u>A loc C</u> (i.e. 'A at C'). Thus we can give the following definition:

210.



There appears to be no expression corresponding to 'enter' for the opposite transition from being in a place to not being in a place: 'leave B' neutralizes the distinction between 'move away from B', 'move out of B' and 'move off of B'--cf. the following:

211. a. Mary left the table

b. Mary left the room

c. Mary left the stage

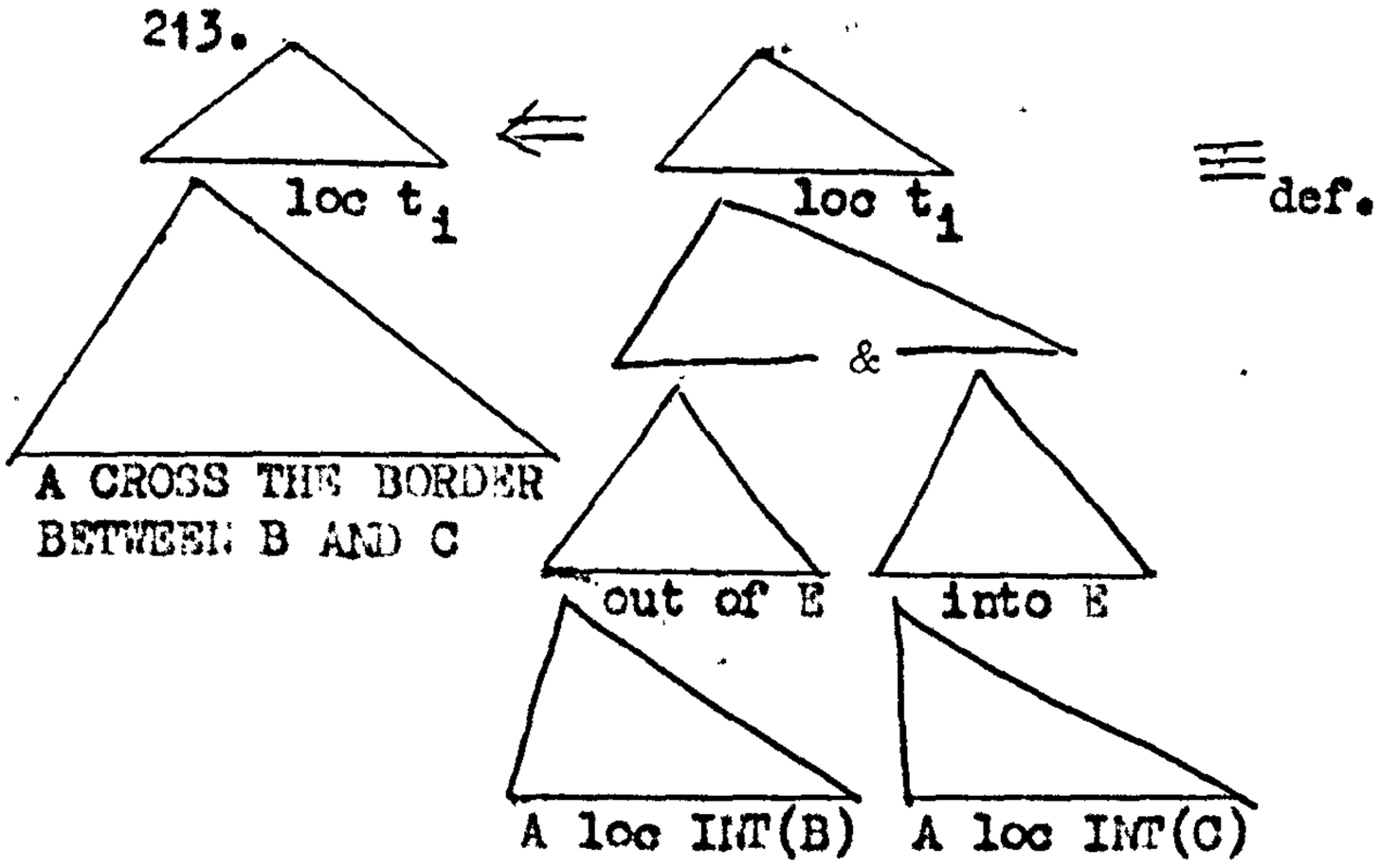
In the case of border-crossings where both initial and final

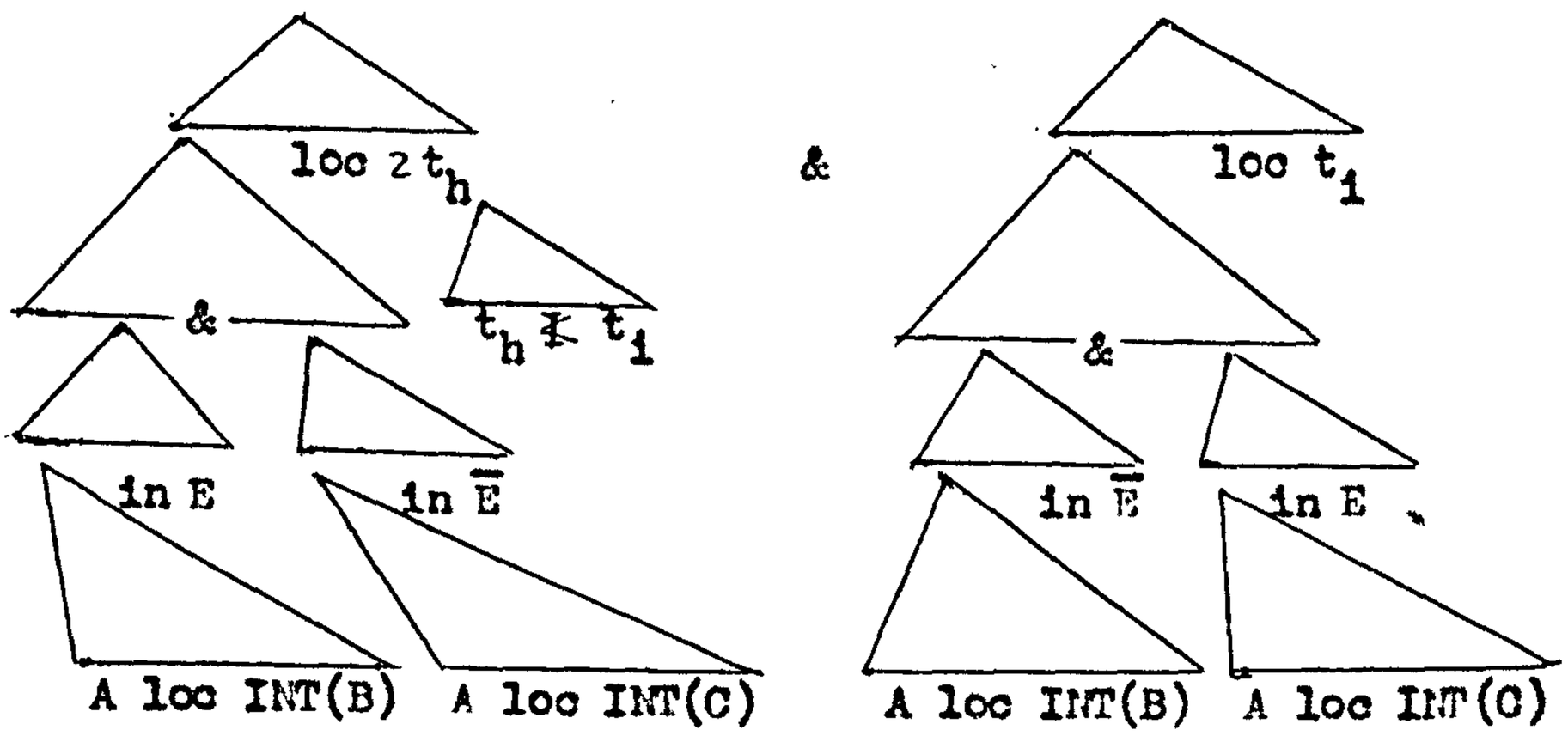
location are positively specified--as in 212.--we have a transition between a point in B which is contiguous with a point in C (where

212. A cross the border (which runs) between B and C

B and C are disjoint). Thus such border-crossings are complex,

213.





involving simultaneously the leaving of one place and the arriving at another: 214. a. implies both 214. b. and 214. c.

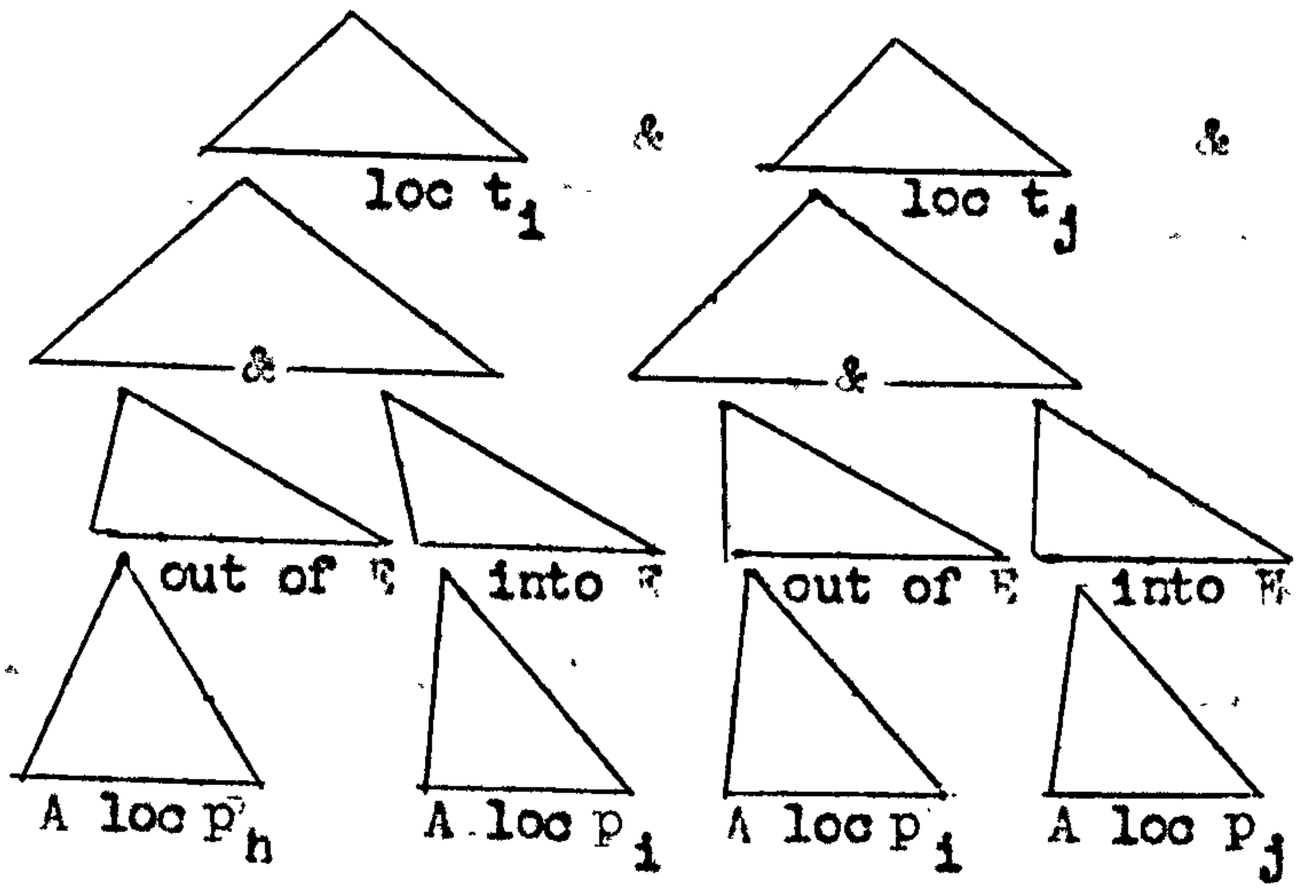
214. a. Jim crossed the border between Perthshire and Argyll at 2:00

b. Jim left Perthshire at 2:00

c. Jim entered Argyll at 2:00

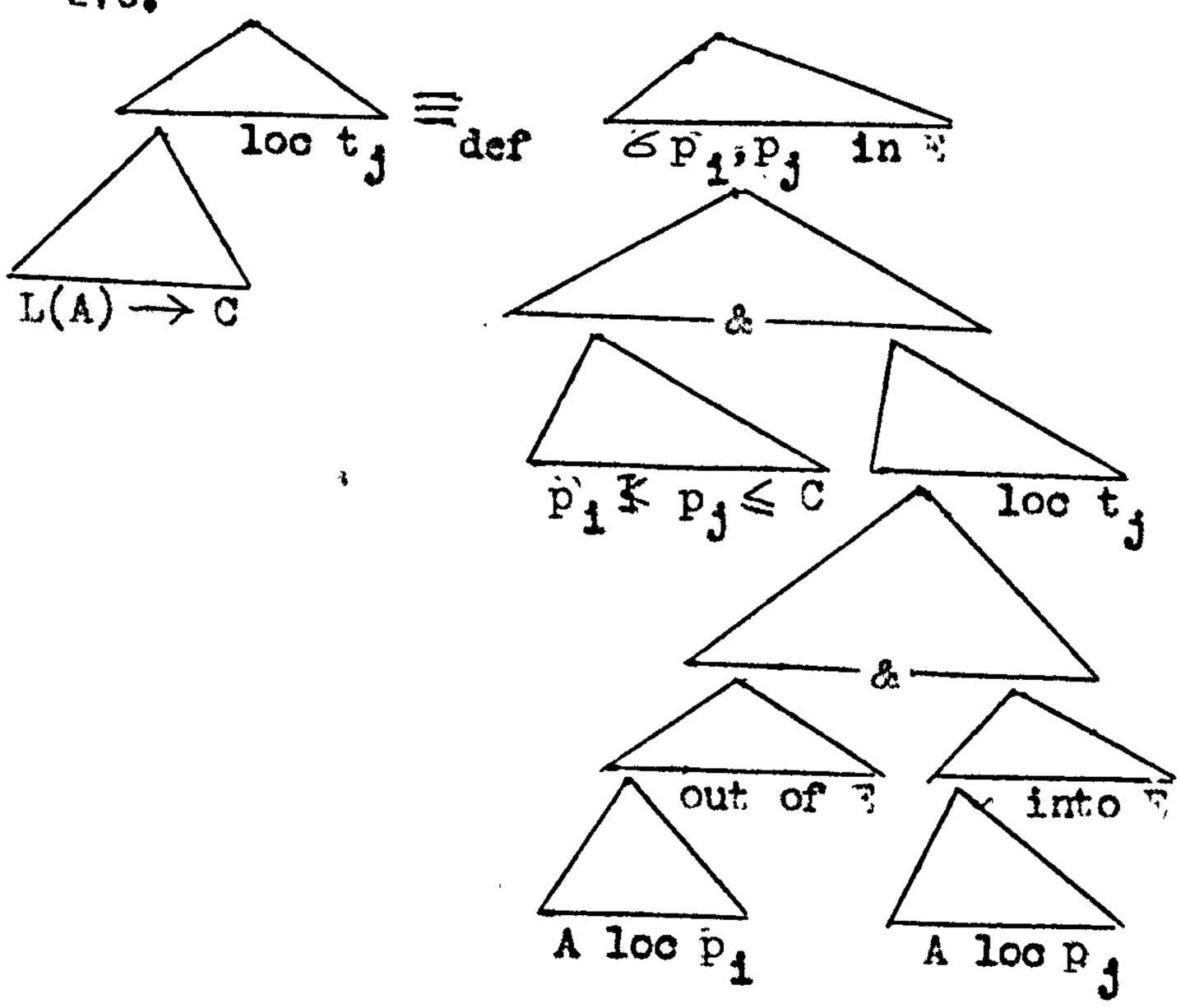
When we consider the construct $L(A) \rightarrow C$, i.e. movement by A towards C, which we so far have treated simply and intuitively as the dynamic counterpart of indirect location, we find that we now have the tools to make explicit what we mean by dynamic. For A to move towards C is for A to be at successive moments increasingly closer to C, what amounts to a series of border-crossings between pairs of points/locations ordered in a relation of immediate succession in the direction of C (i.e. $p_i \nleq p_j \nleq \ldots < C$). Schematically, we have the series below (215.) This can be

215.



generalized to the definition given in 216. which states that

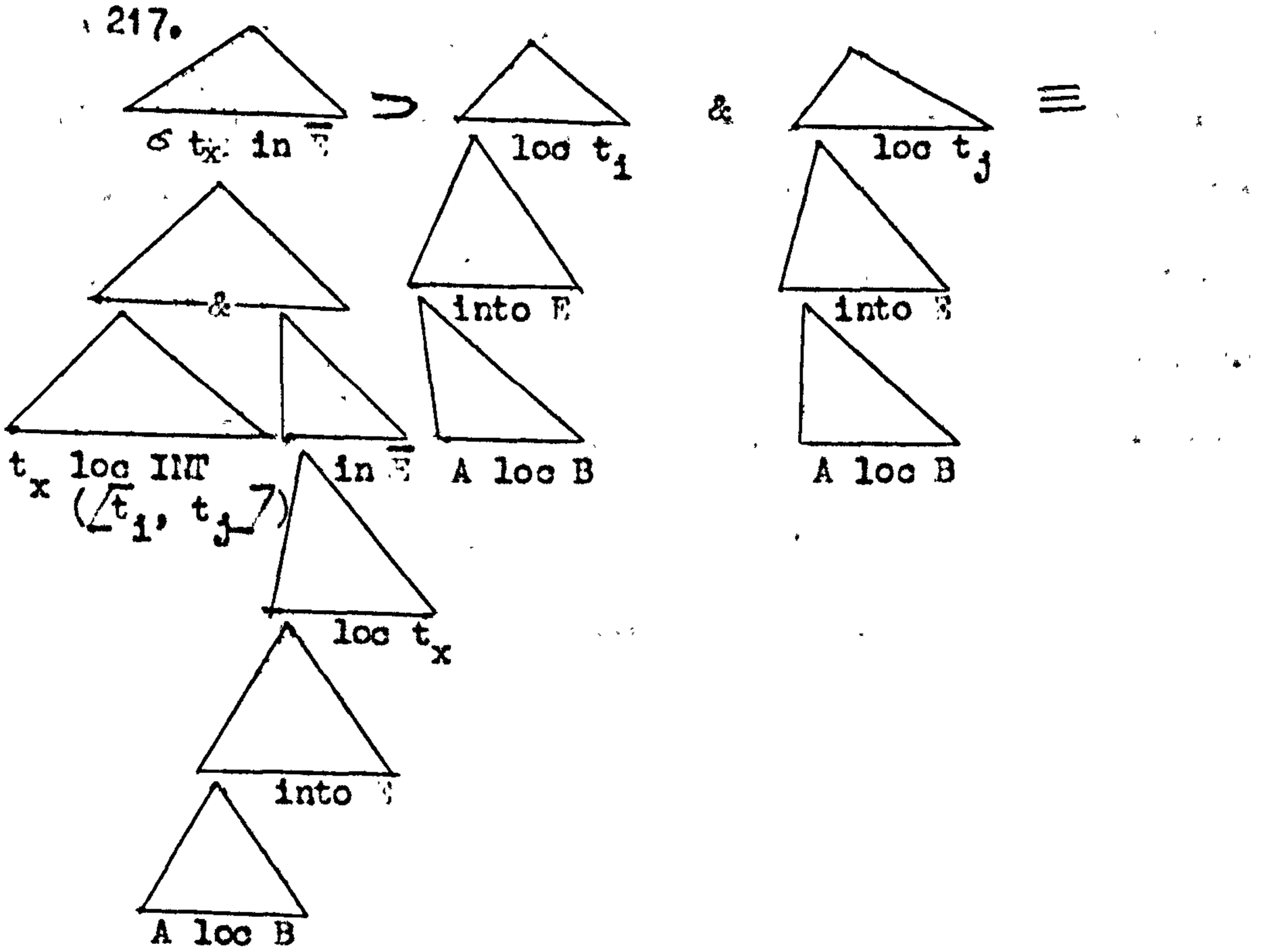
216.



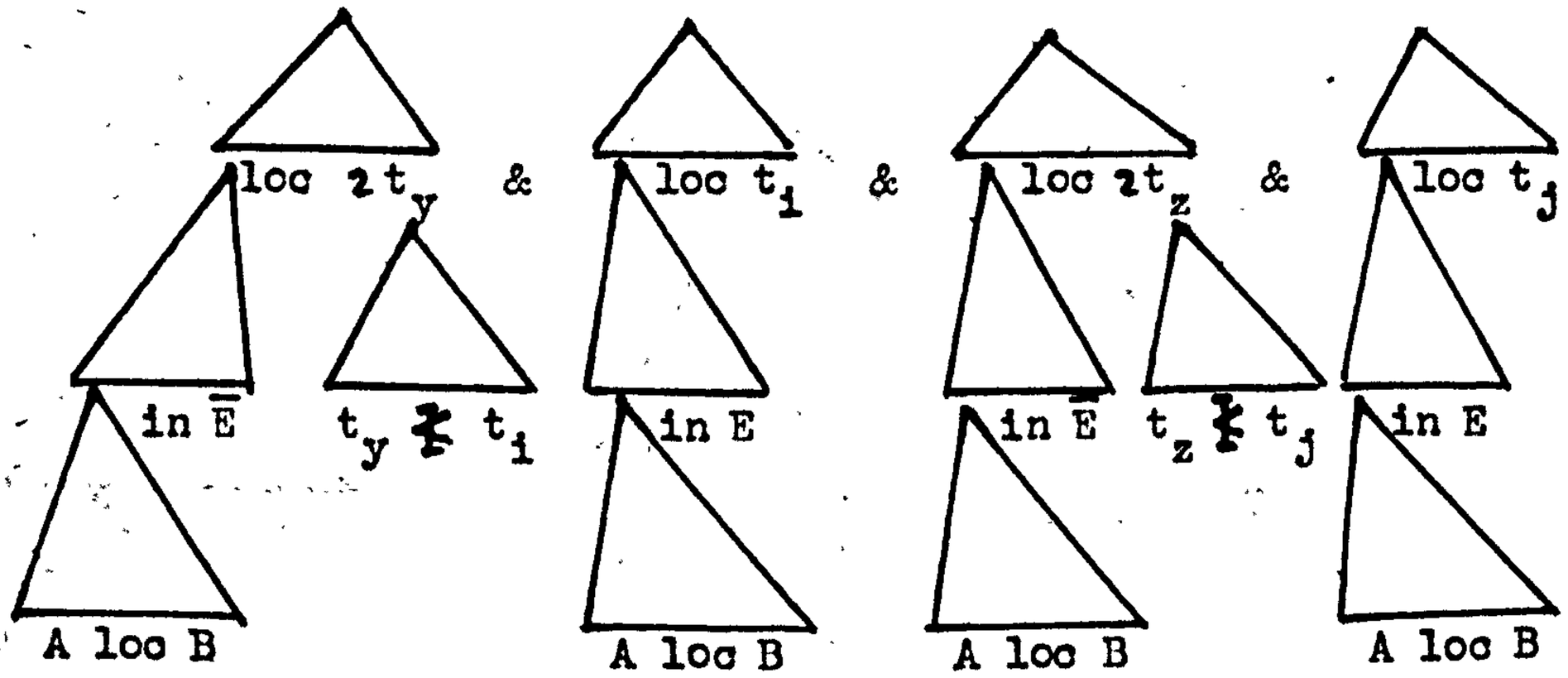
'A move toward C at t_j' is semantically "there is a pair of locations p_i, p_j, such that p_i is immediately before p_j and both are before C/ and such that at t_j it both ceases to be the case that A is at p_i and comes to be the case that A is at p_j".

Because of the superordinate indefinite existential locative in 216., the structure can be temporally iterated without resulting in a contradiction. To see that just consider what would happen if the temporal locative in 209. was in the domain of a universal quantifier. For simplicity, let us suppose that such a domain comprises a set of two contiguous time points t_i, t_j.

217.



217. (cont'd)

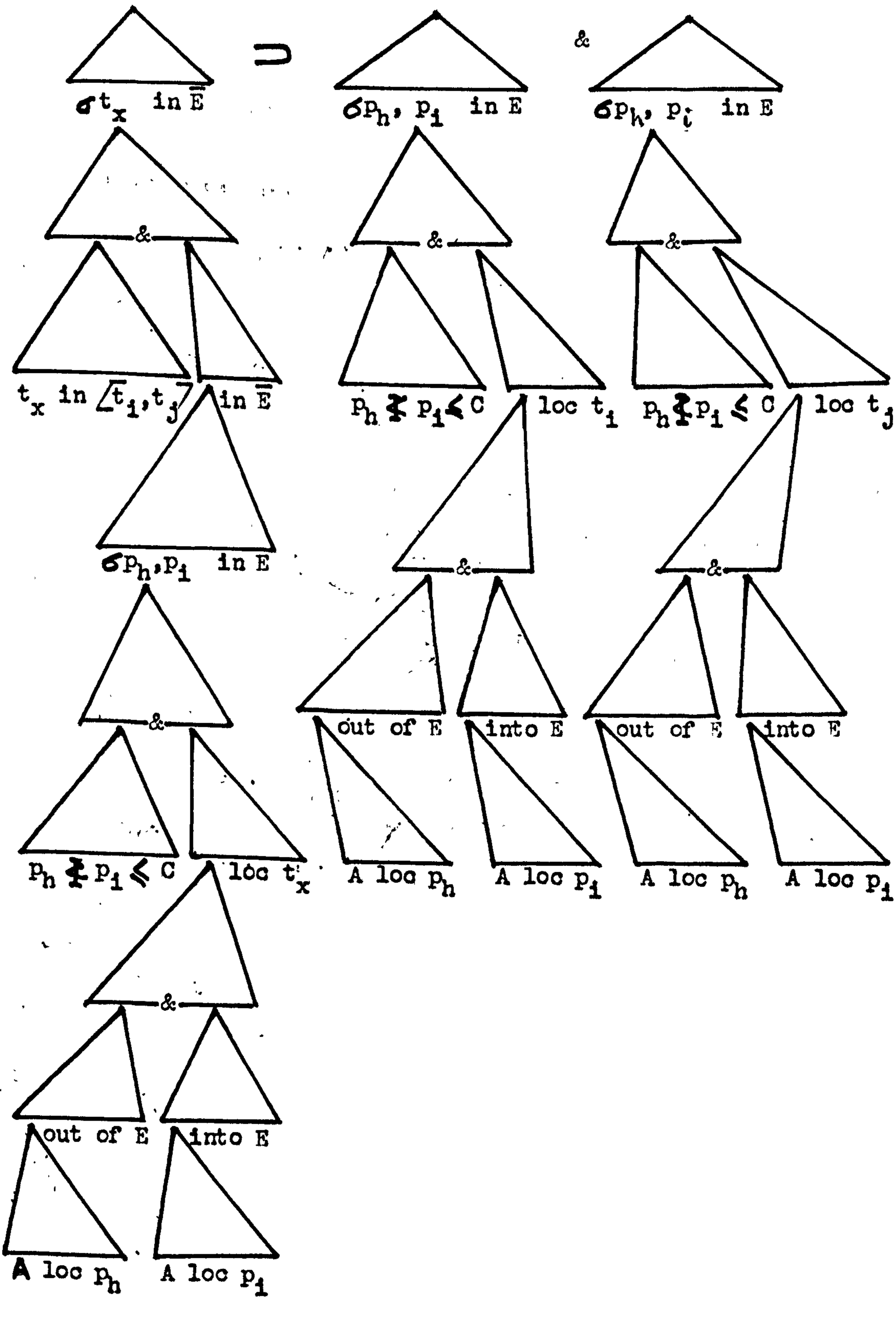


The middle two conjuncts in the final structure incorporate a contradiction since $(\exists t_z)\ (t_z \neq t_j) = t_i$ and hence at one and the same time complementary existential locations are ascribed to the same location relation. This contradiction underlies the unacceptability of such sentences as 218. and 219. In contrast, no anomaly is inherent in the structure in 220. (which we have only

218. *Flora left the house from 1:00 to 2:00

219. *Max reached the bus-stop for ten minutes

220.


⊃
&
σ t_x in E
σ p_h, p_i in E
σ p_h, p_i in E
&
t_x in ⌈t_i, t_j⌉ in E
&
p_h ∓ p_i ≤ C
loc t_i
&
p_h ∓ p_i ≤ C
loc t_j
σ p_h, p_i in E
&
out of E
into E
&
out of E
into E
p_h ∓ p_i ≤ C
loc t'_x
A loc p_h
A loc p_i
A loc p_h
A loc p_i
&
out of E
into E
A loc p_h
A loc p_i

partly decomposed) since the pair of points p_h, p_i will remain within the scope of existential quantifiers and therefore need not be identical in both conjuncts. Thus, such sentences as 221. are perfectly acceptable.

221. We drove towards the mountains for several hours

7.5.2 Extended journeys and 'finish'

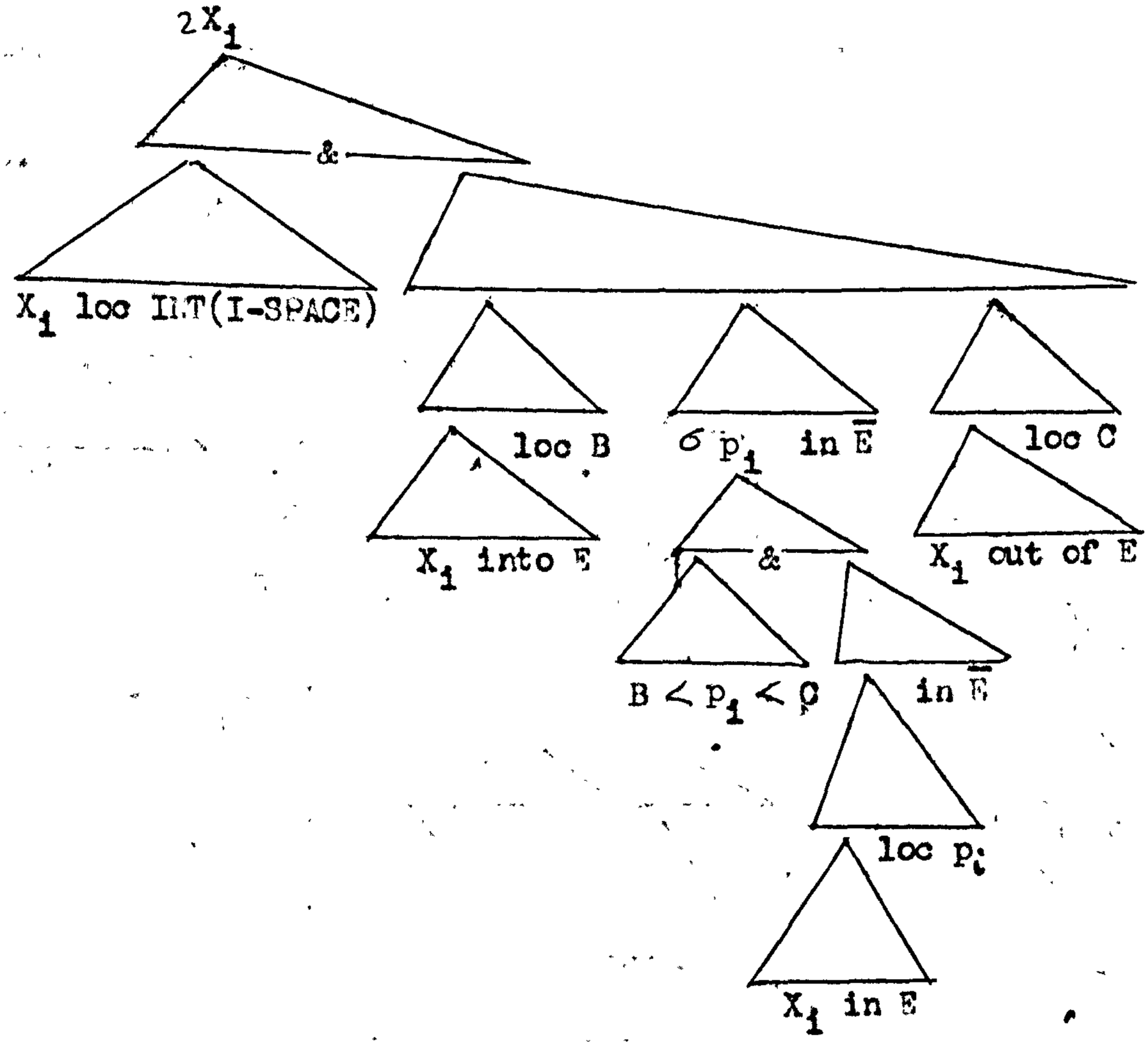
We must now turn to our main task of characterizing an extended journey of the kind 'A move from B to C' where all of A, B and C are conceptually or perceptually points and to show how the structures we have postulated above for 'leave', 'arrive at', 'cross the border' and 'move towards' are related to it. First of all let us reconsider the semantic structure of noun phrases describing a linear, spatial entity of bounded extend, as in 222.

222. The highway (which extends) from B to C

Granting the idealization involved in treating a highway as a one-dimensional entity and granting the linguistic validity of and necessity for a three-fold distinction between one-dimensional

space, two-dimensional space and three dimensional space (cf. Bierwisch, 1968; Teller, 1969; Klooster, 1972; H. Clark, 1973) we can propose the following, somewhat amplified, underlying representation for 222. The element I-SPACE stands for the class

223.



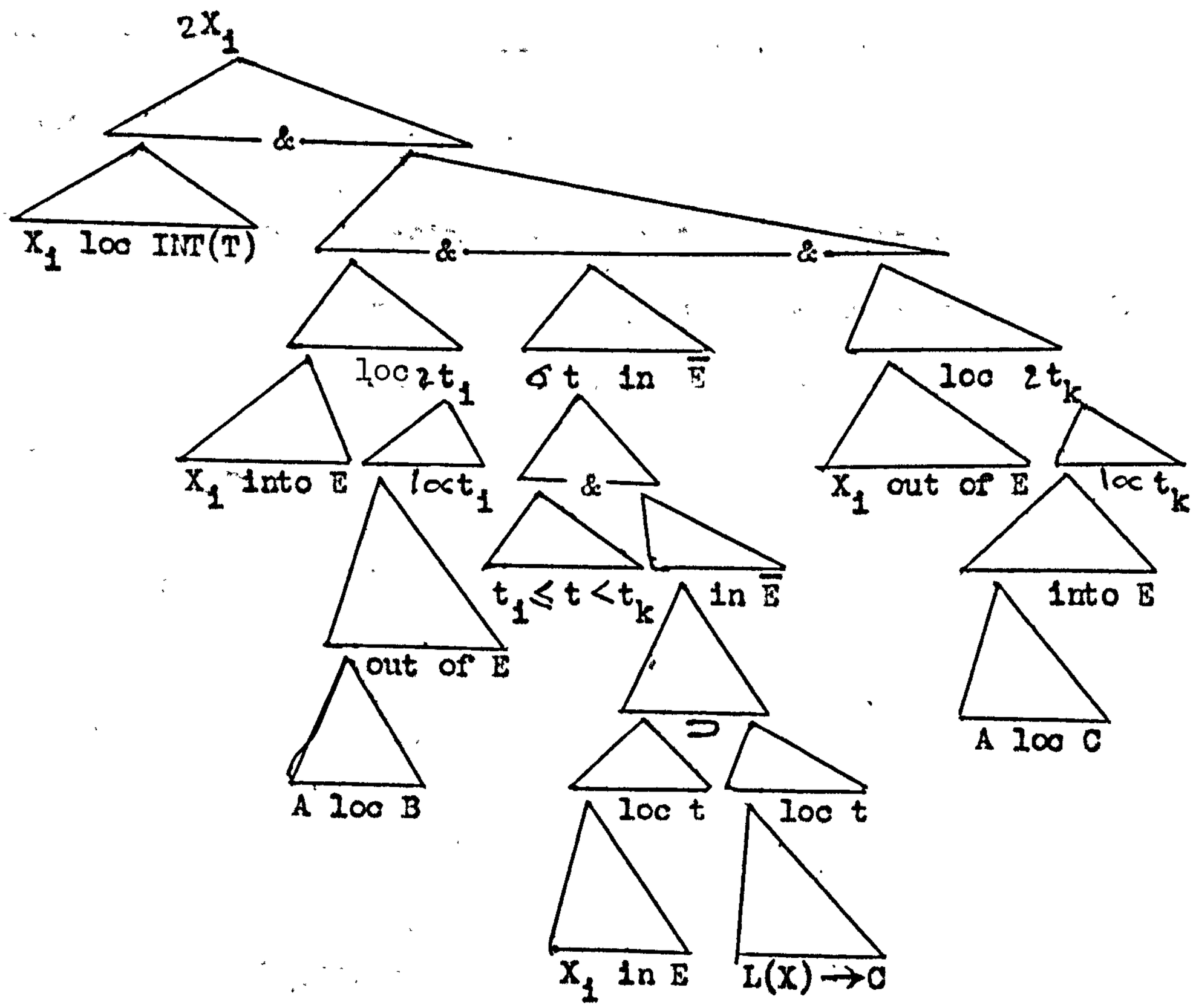
of linear entities. The structure in 223. can be read as "the X_1 such that X_1 is a one-dimensional entity beginning at B, ending at C, and existing at all points between B and C. Other elements of meaning which are not relevant to the task at hand (such as those which distinguish a highway from a path or from a simple line) have been ignored.

Now, we would like to suggest that there is a strong parallel between 223. and the semantic structure underlying 224. The main

224. A's journey from B to C

difference is that the bounded linear entity involved is a temporal one whose beginning and end points are the times at which A leaves B and A reaches C, respectively. Thus, the structure we postulate as underlying 224. is that in 225. This can be glossed as "the X_i

225.



such that X_i is in T and such that X_i begins with A ceasing to be at B, X_i ends with A arriving at C, and X_i is in existence only at those times at which A moves towards C." This last clause (= the central conjunct on the right of 225.) assures that when X_i begins,

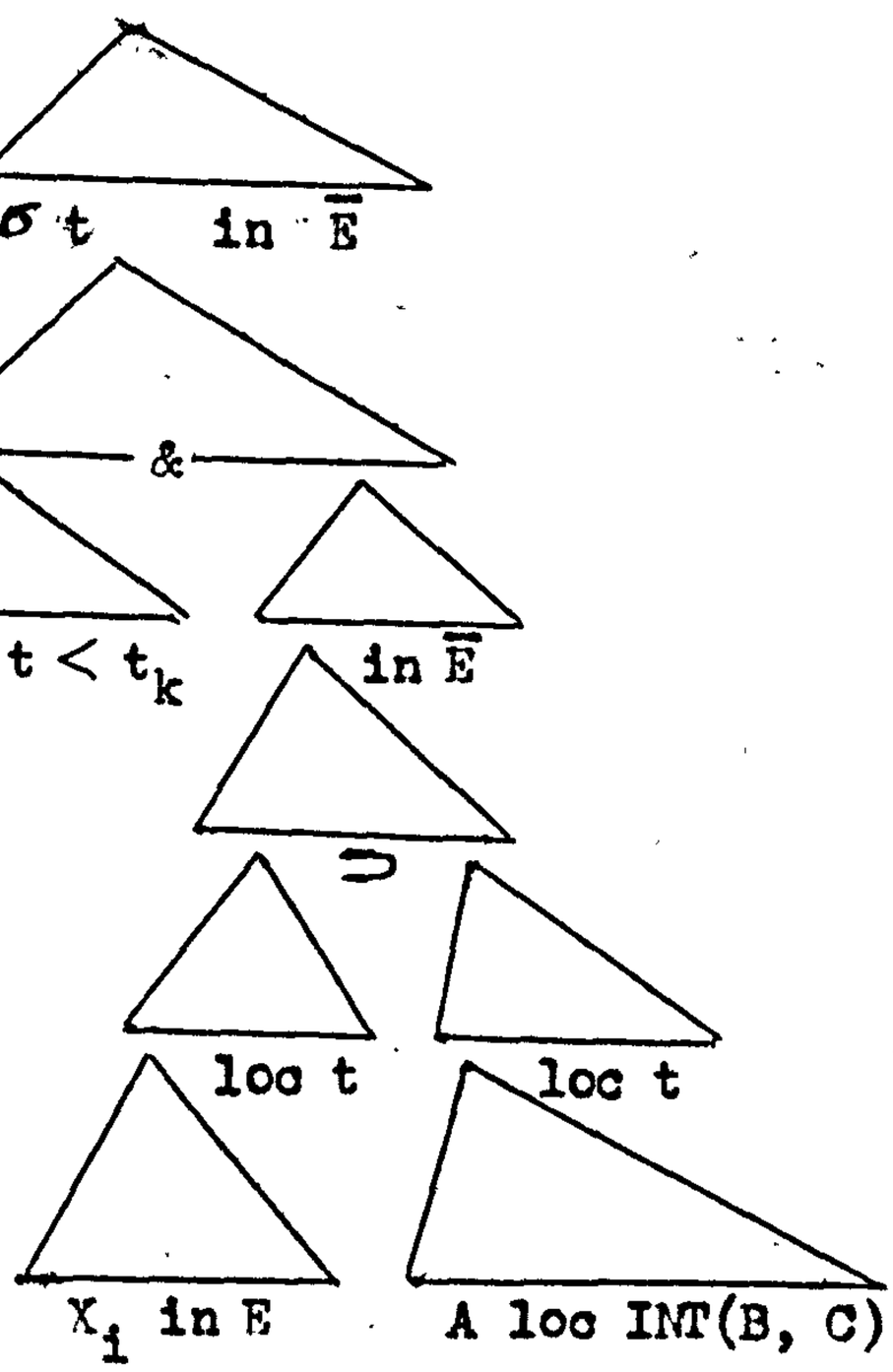
i.e. when A ceases to be at B--A does so in the direction of C.

However, it is probably the case that this central conjunct is too strong a requirement on X since one might wish to allow both for non-direct journeys from one point to another (i.e. where the path of A is not a straight line from B to C) and for interrupted or suspended journeys (i.e. where A is on its way from B to C but is not actually moving along the path at all times. If we let (B,C) represent the path of A, relaxing the requirement that it be a straight line (i.e. it may be an arc, or a conjunction of sub-intervals in varying directions--cf. 226), then we can replace this

226. A zig-zagged its way from B to C

conjunct by that in 227. which states that for all times in $[t_i, t_k]$ X_i is in existence only if X_i is on the path from B to C. However, time and space has not allowed us to explore the

227.

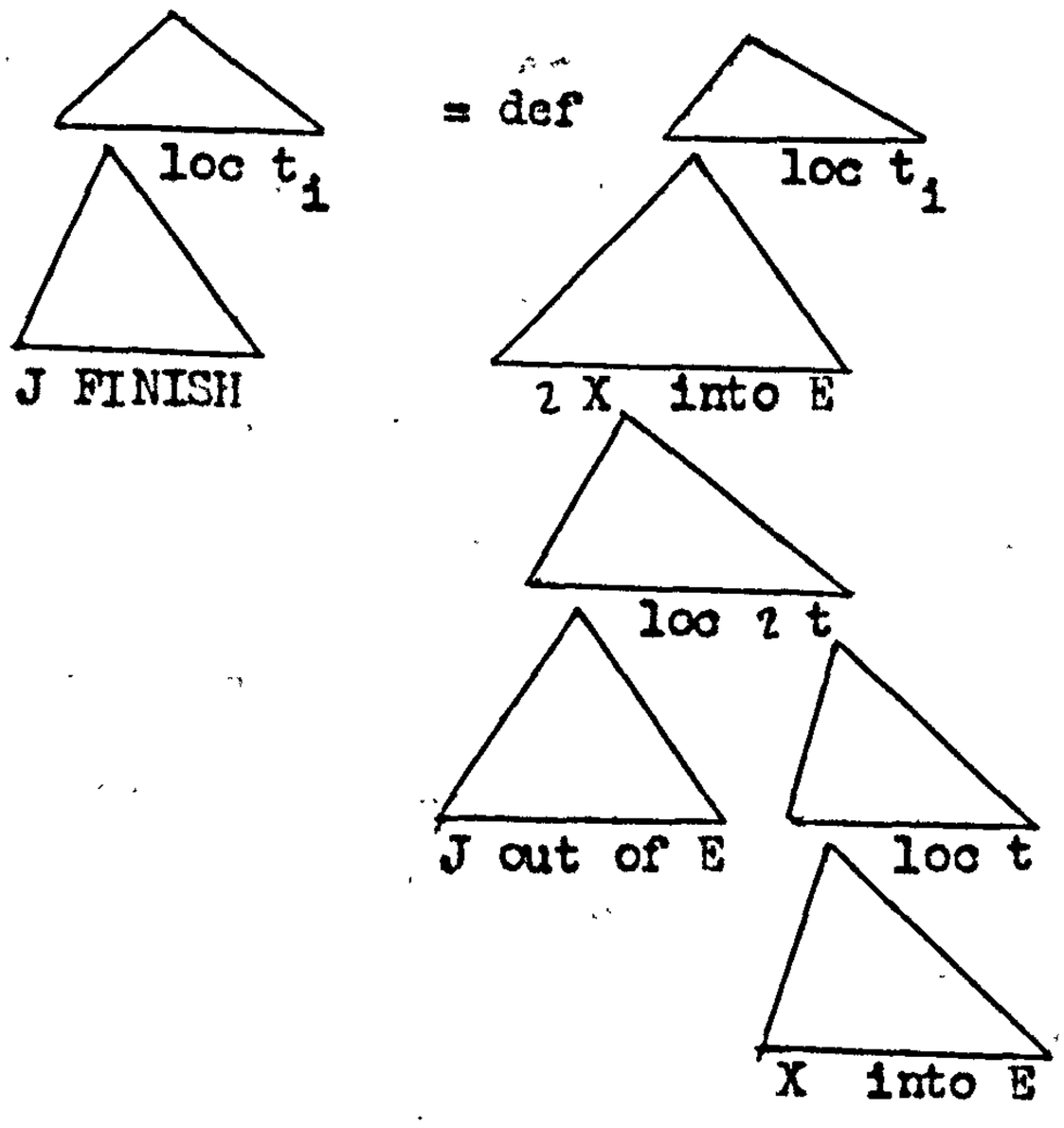


ramifications of this alternative and so we will continue with the characterization of a journey given in 225.

Thus, assuming the correctness of some such structure as 225. underlying 224., we can now proceed to account for some of the special properties of sentences describing a journey. First, we have noted that the verb 'finish' is appropriately used only with sentences which implicitly or explicitly describe a journey (recall Taylor's remarks on 'finish' and 'performance verbs' in §6.2.2). Intuitively, to finish doing something (or for something to finish) is to bring something to its end (or for something to come to its end). If a journey is (partially) defined as ending when a certain locational relation (e.g. A loc C in 225.) comes into existence, then for such a journey to finish is for that locational relation to come into existence (e.g. for C to be reached).

Thus, we can give the following general definition for 'finish' when applied to a propositional structure J describing a journey:

228.



This structure (which may be surmounted by a causative structure) can be glossed as "at t_i the situation X, which is such that J goes out of existence with X's coming into existence, comes into existence". This semantic representation for 'finish' will account for both the implicational relationships below, the latter

229. A finished moving from B to C ⊃

A reached C

230. A finished moving from B to C ⊃

A stopped moving from B to C

of which exemplifies the distinction between 'stop' and 'finish' discussed by Taylor and which Bull described as the element of 'automatic termination' inherent to cyclic events.

We may now offer an account for the observations made, for example, by Jespersen, Garey, and Leech (cf. § 6.3.4.1) to the effect that one 'meaning' of the progressive form is "unfinished", "incomplete". We pointed out at the time that this interpretation depends upon the situation described in progressive aspect being an accomplishment, i.e. a journey. This element of "unfinished" is made explicit in the following implication:

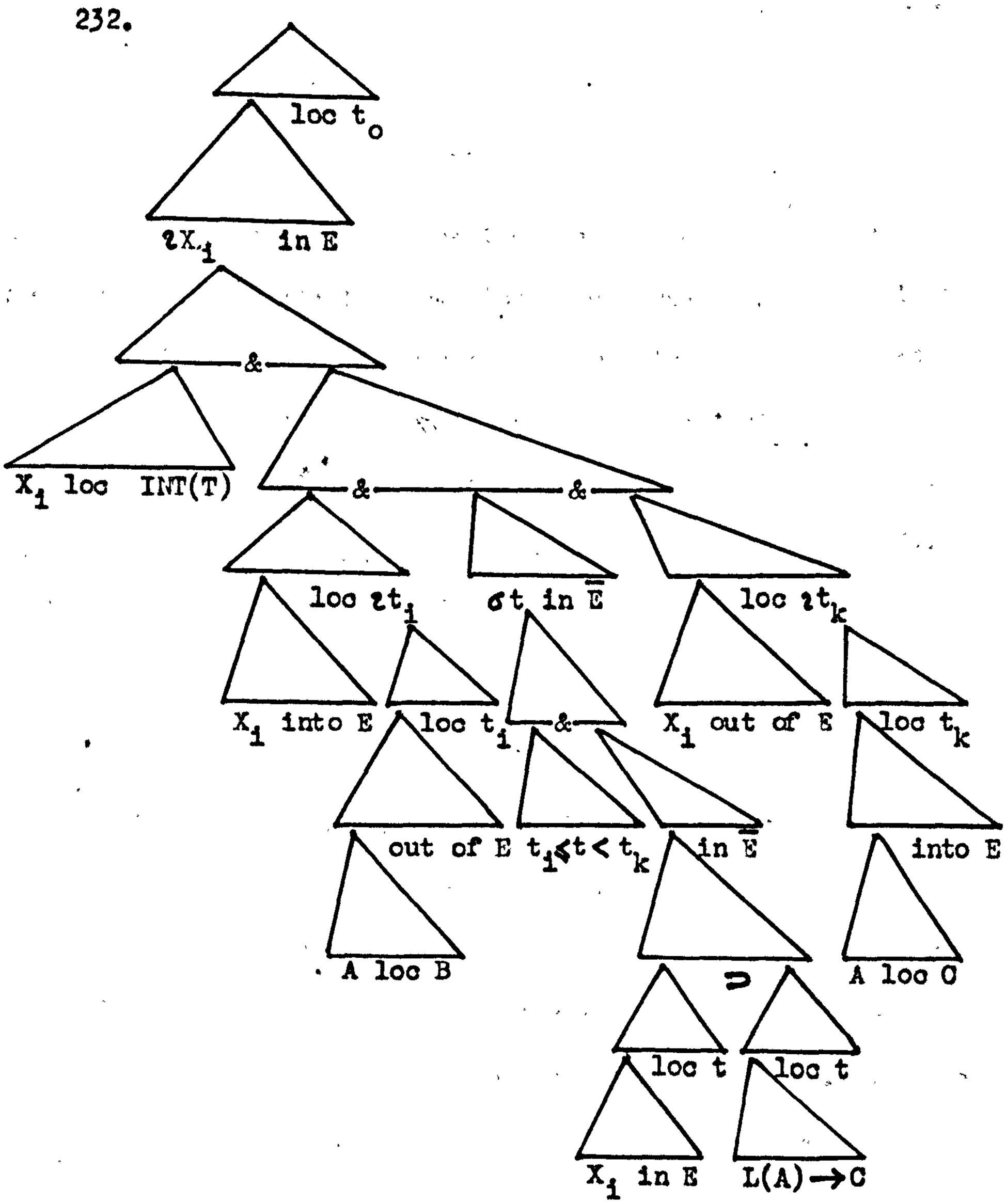
231. A is moving from B to C ⊃

A has not finished moving from B to C

Although a full explanation for 231. will depend upon an analysis of inclusive tense, we may make a substantial step in accounting for it by considering the structure underlying the antecedent in 231. and our account of 'stop' and 'finish' above. We have adopted

an existential analysis of progressive aspect whereby in E is predicated of the propositional structure standing for a situation. As this propositional structure is functioning as an argument in a relational predicate, it will be dominated by a noun or name variable, i.e. in the case of a journey it will be of the form 225. Hence, underlying the antecedent of 231. is, we suggest, the structure below:

232.



The element τX_i may be optionally spelled out as 'the process of' which, we suggest, is an appropriate label for a temporally-structured proposition. 'A state of', on the other hand, is realized when τX_i (or, rather, σX_i) is defined by a temporally non-structured proposition, i.e. a locational relation. Furthermore, whether <u>in E</u> is realized as the progressive form or not will similarly depend on whether X is a process, i.e. temporally structured, or a state, i.e. a locational relation, respectively.

The structure underlying 233. below will be identical to 232.

233. A stopped moving from B to C at t_a

except for the existential predicate being <u>out of E</u> rather than <u>in E</u> and the superordinate temporal locative containing as its location object a time t_a which is marked for anteriority with respect to t_o. According to our analysis of <u>out of E</u>, this structure is equivalent to a conjoined structure the second conjunct of which is 232. with t_o replaced by t_a and <u>in E</u> by <u>in $\overline{E}$</u>, i.e. that underlying 234. Now sentence 235. differs from 233. only in two respects: (1) the time

234. A was not moving from B to C at t_a

235. A has stopped moving from B to C

of stopping is an unspecified time either before or simultaneous with t_o; and (2) there is the additional implication (which we suggest can be uniformly associated with inclusive-tense sentences describing journeys, including border-crossings) that the resulting non-existence of A's moving from B to C lasts from that time up to and including t_o, i.e. 235. implies 236. We are now in a position

236. A is not moving from B to C

to account for 231. Starting with the antecedent, it is obvious that the negation of 236. is implied. From the logical equivalence $P \supset Q \equiv \sim Q \supset \sim P$ and the fact that 235. implies 236., we can then derive 237. (i.e. letting P = 235. and Q = 236.). Again, using the same equivalence and the implicational relation in 230.

237. A has not stopped moving from B to C

which we have accounted for, we can deduce the consequent of 231.

Finally, we can use our characterization of a journey and that of 'finish' to explicate the semantic function of expending adverbials of the type 'in so much time', which, in general, co-occur only with sentences describing journeys. For now we will confine our attention to sentences describing extended journeys rather than border-crossings. Informally, the temporal adverbial in 238. gives the measure of the temporal interval which extends from

238. A moved from B to C in five seconds

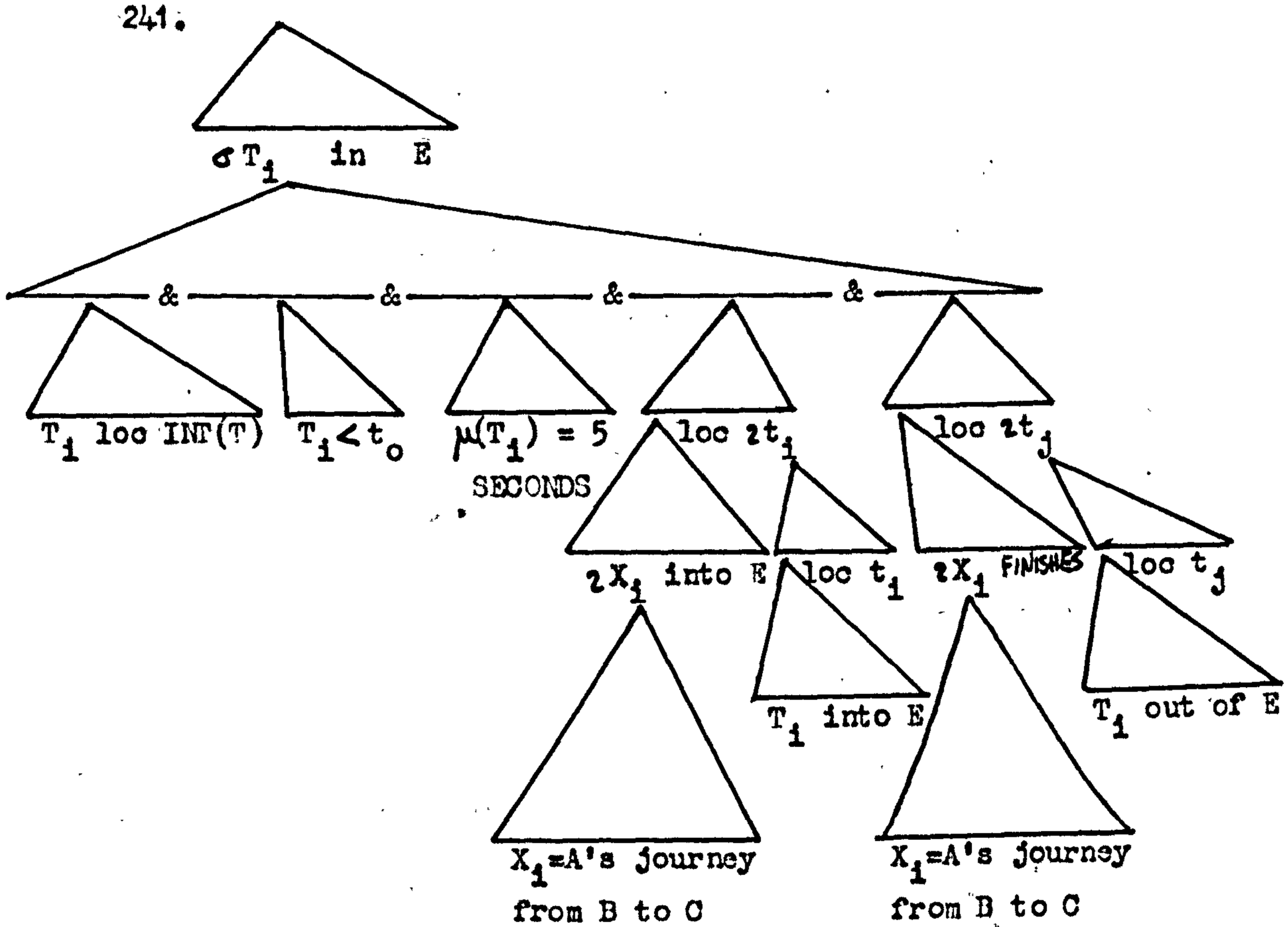
the time at which A began to move from B to C to the time at which A finished moving from B to C, i.e. the time at which A reached C. The actual existence of such an interval is indicated by the past, non-progressive form of the verb. Such an interval could equally well be predicted to exist in the future, as in 239., or have the

239. A will move from B to C in five seconds

240. It's not possible for A to move from B to C in five seconds

possibility of its existence denied altogether, as in 240. We propose the following structure as underlying 238. (we have

241.



abbreviated the structure underlying 'A's journey from B to C'—cf. 225.—by a single triangle).

This adverbial, however, is also used in a slightly different context but one that we would suggest, overlaps with that of sentences describing extended journeys. In the following sentences 'in three minutes' can be translated as 'three minutes from now'

242. John will arrive in three minutes

243. John will be here in three minutes

244. John will climb up the ladder in three minutes

(='at the end of three minutes, starting from now') and although only 242. has an explicitly inceptive meaning, 243. is also interpreted inceptively and as equivalent to 243. Sentence 244. is

ambiguous between an inceptive interpretation--cf. 245.--and an expending interpretation--cf. 246--and these two interpretations are

245. John will begin to climb up the ladder in three minutes/three minutes from now

246. John will {need / take} three minutes to climb up the ladder

not incompatible--cf. 247. If a secondary temporal reference point

247. John will climb up the ladder in three minutes (=three minutes from now) and he will do it in as short a time as possible (= he will take as little time as possible to climb it)

in the past (or in the future) is well enough established by the context, this same interpretation (= "three minutes from then") is possible and the same ambiguity can result:

248. John arrived in three minutes

249. John was here in three minutes

250. John climbed up the ladder in three minutes

The two interpretations are given distinct realizations in the case where "in a short time" is lexicalized: the expending sense is lexicalized as 'quickly', the locative sense as 'shortly'/'soon'.

251. John {arrived / will arrive} {soon / shortly}

252. John {was home / will be home} { soon / shortly }

253. John [climbed / will climb] the ladder {soon / shortly} and he [did / will do] it quickly

The pair 'eventually'/'slowly' (= 'in a long time') is not strictly comparable, but the distinction between a locational and an expending function is still valid.[1]

However, what is common to both interpretations is that an interval is involved whose end point is the temporal location of an inceptive event (for 'finish' is basically inceptive, and only by implication cessative--recall 228.). The beginning point is either the temporal location of the inception of a journey or is the primary or a secondary temporal reference point. Hence, the two interpretations can be expected to coalesce in those contexts in which the inceptive event is that which finishes some journey and the temporal reference point is implicitly the beginning point of the same journey. Thus, for example, there is little difference between the sentences below

254. The plane left Frankfurt. and reached London in thirty minutes

255. The plane flew from Frankfurt to London in thirty minutes

Let us now look briefly at the relationship between an extended journey, as characterized in 225., and a minimal journey, i.e. a border-crossing, as for example in 213. If 225. is supplemented

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[1] In French the two adverbial functions are given distinct realizations, 'en' for the expending function as examplified in 1. and

1. On peut aller à Londres en cinq heures

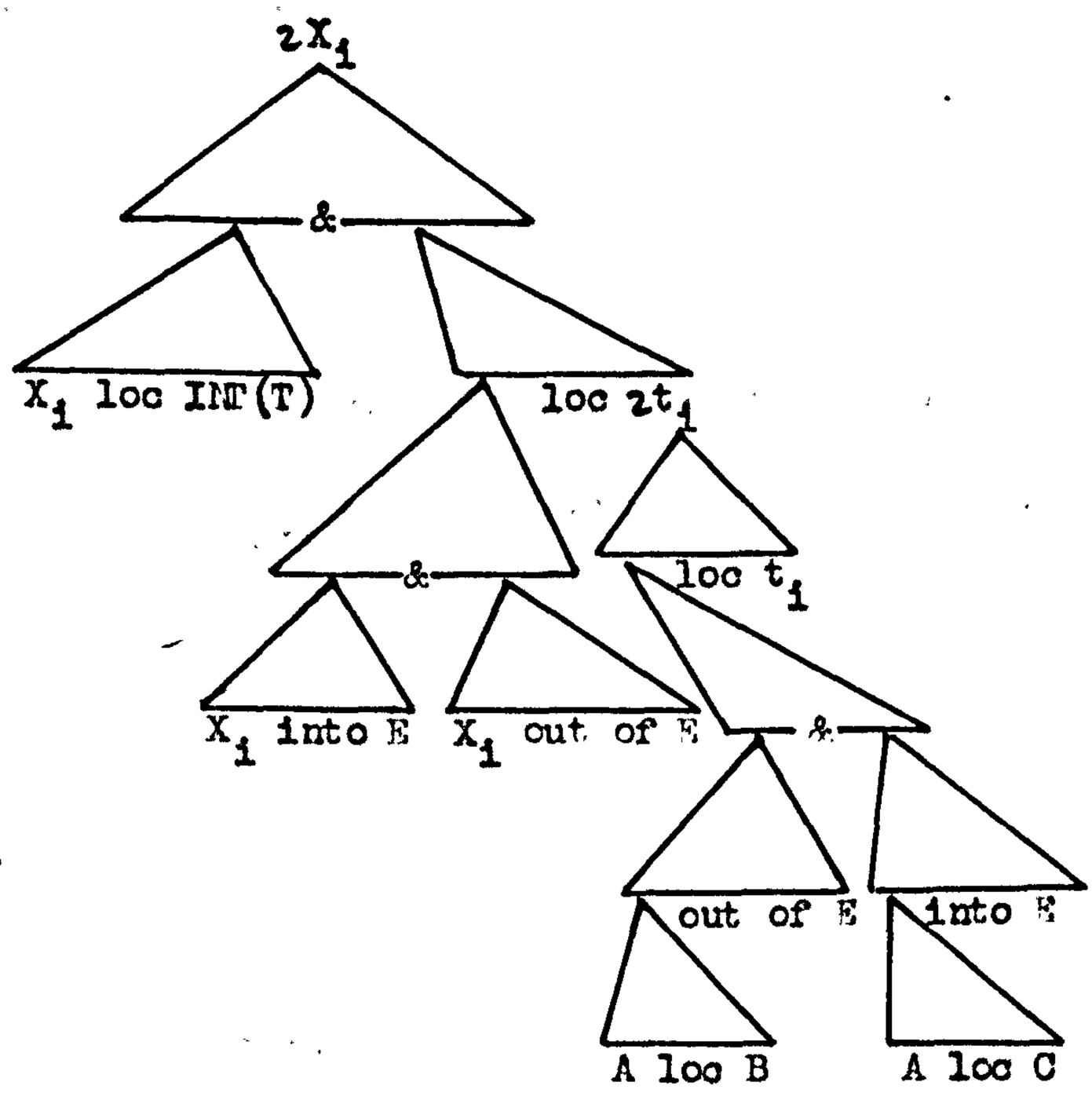
'dans' for the locational function as exemplified in 2. (cf. Pottier, 1962). There are, of course, other complicating factors

2. Elle sera prête dans cinq minutes

involved in the semantic analysis of these two prepositions and their domains of application overlap to a large extent.

with the information that B is contiguous with C, then the going out of existence of A loc B will be the coming into existence of A loc C since the middle conjunct on the right stipulates that A's leaving of B is in the direction of C. If these two events are one and the same, then so are their temporal locations and hence 225. reduces to 256. below. This, of course, is a contradictory

256.



structure since it states that X both comes into existence and goes out of existence at the same moment t_i. However, this is just what we mean when we talk of instantaneous events as having only one phase, as beginning and ending at the same moment. Thus, the contradictory nature of 256. can simply be regarded as stating that ideal border-crossings have no inceptive and cessative phases and that to predicate such of them leads to an anomaly. However,

although 256. as a whole is anomalous, the embedded structure under λt_i is not and, in fact, is the representation we have given for a border-crossing in 213.

It is quite likely, however, that in ordinary usage, such a degree of mathematical precision or idealization is not observed and borders, lines, thresholds of rooms, etc. are perceived and/or conceptualized as having some extent, however minute. This is particularly true in static situations or 'slow-motion' dynamic ones, as in 257. and 258. In such instances we are departing from

257. Fred is standing on the border between Perthshire and Argyll

258. Jim had his foot on the finish line first

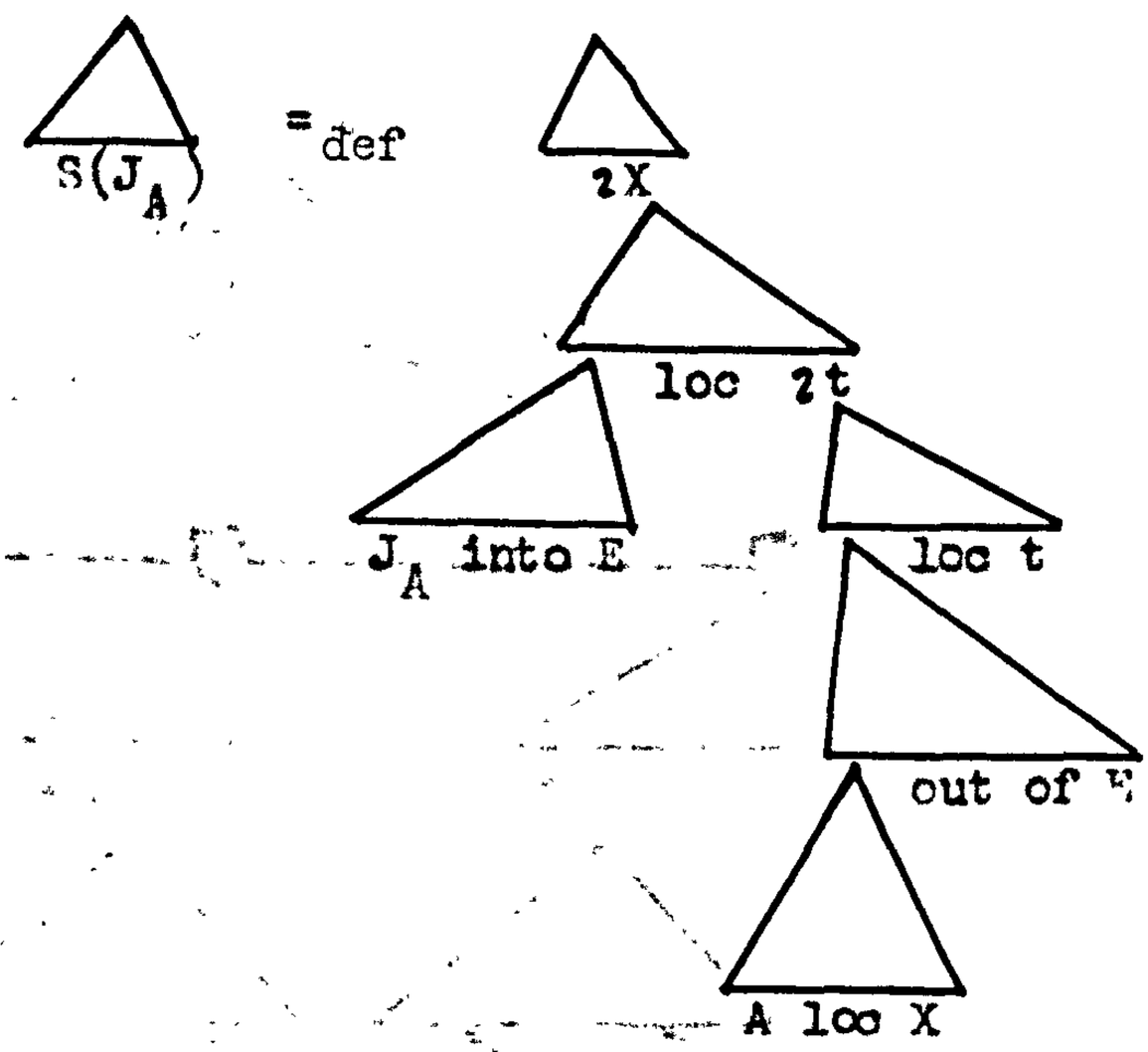
our working assumption that A as well as B and C be conceptual or perceptual points. In the next section we will briefly discuss how our characterization of a journey can be generalized so as to accommodate other than the idealized situations we have been concerned with so far.

Before concluding this section, however, we may point out how the notions 'source'/'ablative', 'goal'/'allative' and 'path', postulated as 'deep cases' by the case grammarians (cf. Fillmore, 1968; Bennett, 1972; Anderson, 1971b), can receive an explicit definition within the present framework. Informally, an entity X is the source of a journey J involving A as the moving object if J begins with A loc X going out of existence. The goal of the journey J is the entity Y such that J ends with A loc Y coming into existence. Seen in this light, the notions source and goal depend

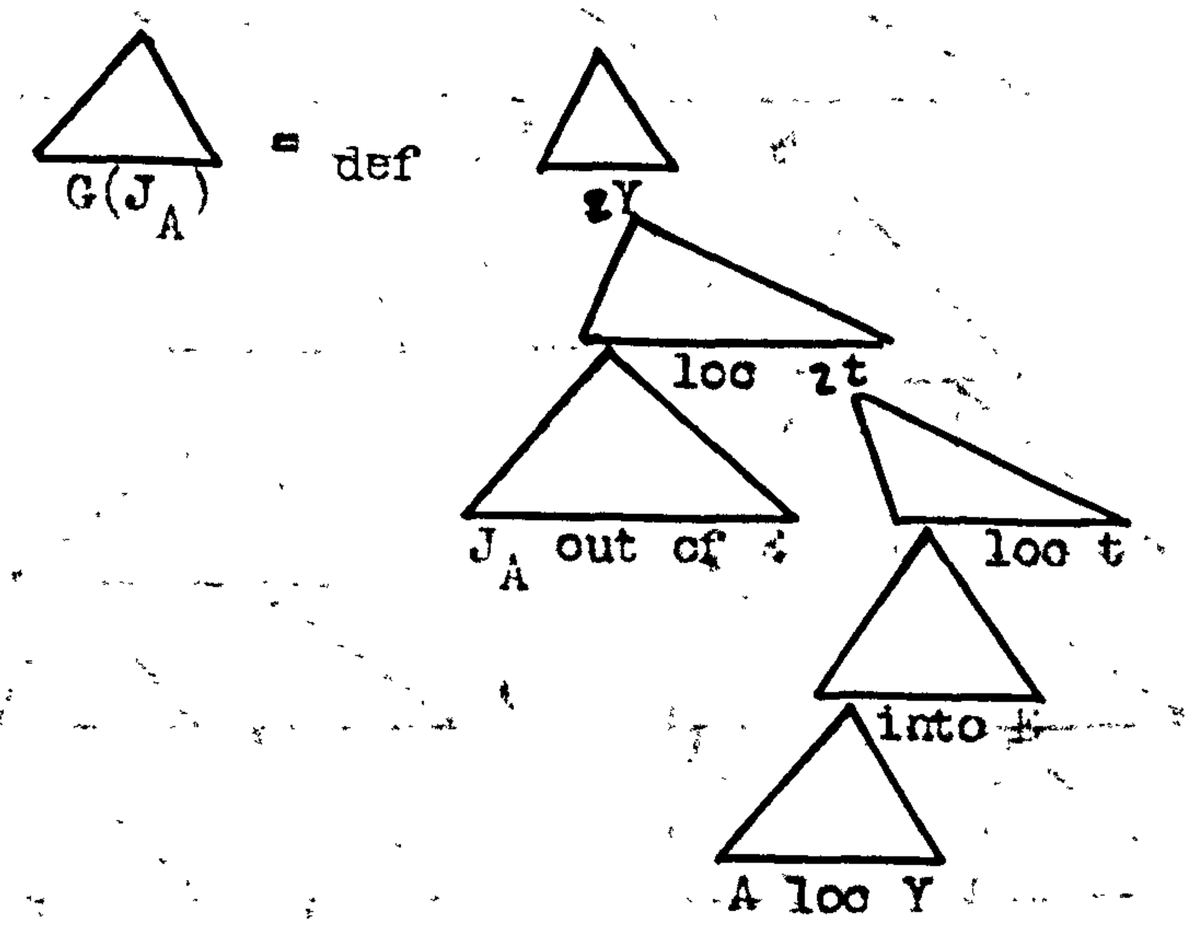
on the notion of a journey for their definition and, conversely the characterization of a journey incorporates that of source and goal. This is usually the case with relational elements: compare, for example, the interdefinability of 'husband'/'wife' and 'be married'.

We can therefore suggest the following definitions in 259. and 260. where S( ) and G( ) are functions specifying the source and goal of their argument, namely a journey. We will symbolize a journey whose moving object is A as J_A.

259.



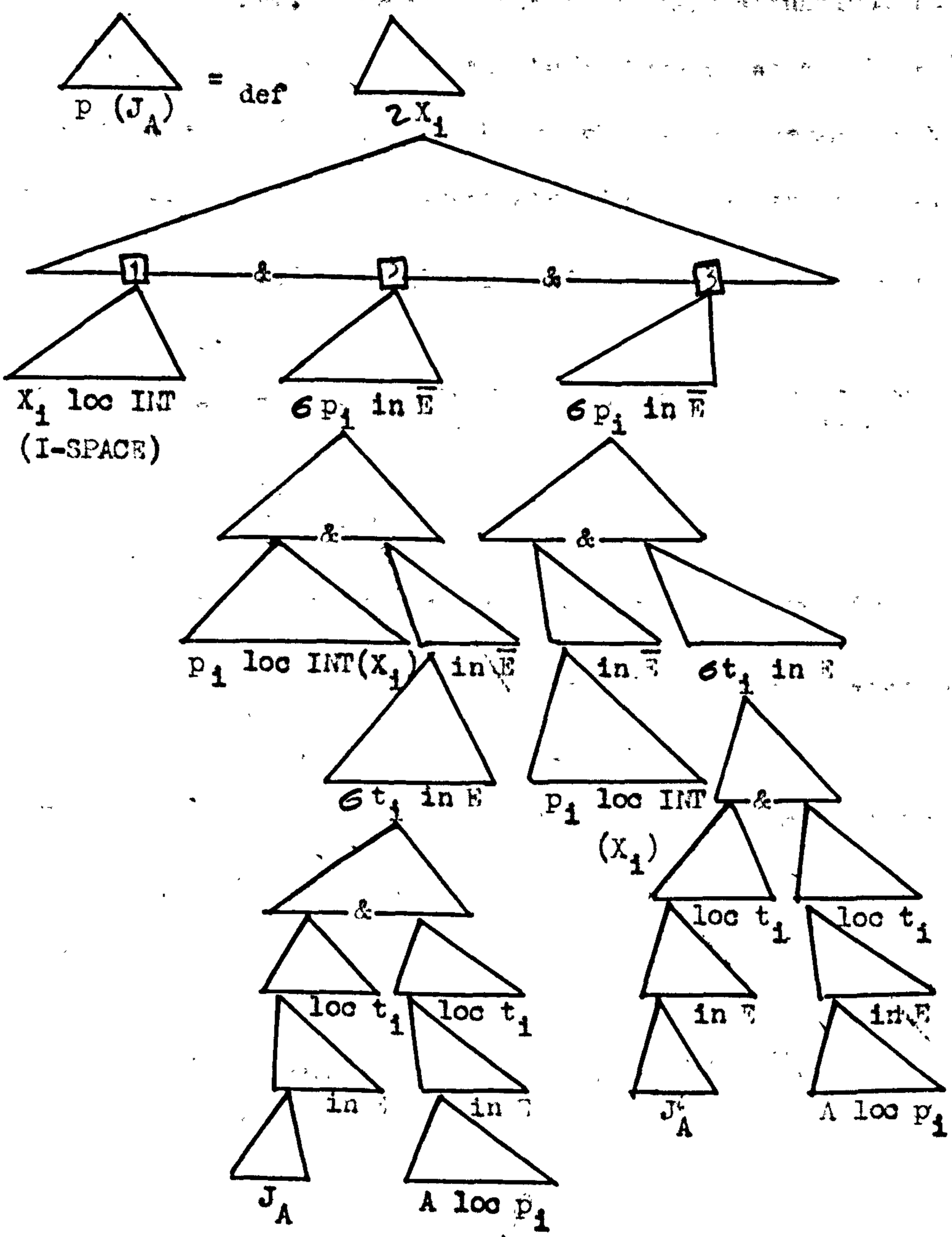
260.



Turning now to the notion 'path' with respect to A's journey from B to C, we can define this informally as the set of places or points with which A enters into a locational relation during its journey. In more precise terms, it is the set of all points p_i such that for some time t_i at which the journey J_A is in existence, A is located at p_i. In the more familiar set-notation, this is represented as 261. and, within our own framework, as 262.

261. $p(J_A) =_{def} \{p_i \mid (\exists t_i)\ (\text{loc } t_i\ (\text{in } E\ (J_A)) \ \&\ \text{loc } t_i\ (\text{in } E\ (A \text{ loc } p_i)))\}$

262.



(Conjuncts [2] and [3] in 262. are the 'all' and 'only' clauses, respectively, implicit in the set notation in 251.)

7.6 A more general conception of 'journey'

7.6.1 General remarks

In the preceding discussion we have restricted our attention to sentences describing journeys which involve the movement of an object A, treated by the speaker as more or less a point, from one point B to another point C or, equivalently, across a stretch beginning at B and ending at C. We also considered the limiting case where B and C are contiguous points, i.e. where there is no space between them. However, there are many situations in which the moving object is less likely to be treated as a point--for example, when it is a linear object with a considerable extent, as in 263., when it is an aggregate of objects, as in 264., or when

263. The freight train crossed the border in a couple of minutes

(cf. The train { took a couple of minutes to cross the / was a couple of minutes in crossing } { border / the border })

264. The battalion crossed the border in five minutes

the object is moving slowly, such that its physical extent cannot be idealized to a point, as in 265. It is to the underlying structure of such sentences as these, and their more abstract and existential counterparts, that we will be directing our attention in this section.

265. The wounded soldier took five minutes to cross the border

7.6.2 Border-crossings where A is an object with an extension

7.6.2.1 Statement of the problem

If we consider the following four sentences, we find that

266. The mile-long train crossed the Forth Bridge in five minutes

267. Jim ran across the Forth Bridge in four minutes

268. The mile-long train crossed the border in four minutes

269. Jim drove across the border at 5:00

between the two extremes of the most general case of an object with extent traversing a stretch of space (266.) and the limiting case of a point-apprehended object moving across a dimensionless border (269.), there are two intermediate cases, one which involves a point traversing an expanse and one which involves an object with extent crossing a border. Now, the interesting fact is that the logical structure of these two situations must be such that the adverbial 'in so much time' is applicable to both. So far we have discussed only how it applies to the structure underlying 267.

It turns out that there are phenomena in everyday-life in which these two sub-classes of a journey are instantiated in a logically equivalent manner. Consider, for example, the kinds of devices we use for measuring the weight of an object. Besides the balancing scales, there are weighing machines such that the weight of the object causes an indicator to move across a fixed scale and others which cause a scale to move across a fixed indicator. The former device involves a journey of a point across an expanse, the latter a journey of an object with extent across a border.

Both, however, achieve the same result: the indicator and a point on the scale come to be superimposed such that the weight of the object can be read off.

7.6.2.2 Related problems with the 'moving-ego' and 'moving-time' spatial metaphors

The relevance of this simple example to the problems connected with discussions of the 'spatial metaphors' underlying the directionality or movement of time makes it worthwhile to digress somewhat at this point to take up our earlier remarks regarding the notion of 'temporal journey' or that of 'dynamic' as applied to the temporal axis.

H. Clark (1973: 50), for example, suggests that "time can be viewed as a highway consisting of a succession of discrete events. We humans are seen in one of two ways with respect to this highway: either (1) we are moving along it, with future time ahead of us and the past behind us; or (2) the highway is moving past us from front to back. These two metaphors might be called the moving ego and moving time metaphors, respectively" (cf. also Fillmore, 1971b; Traugott, 1974). Philosophers, who have been at work on the problem of 'time travel' for a much longer time than the linguists, have found many other analogies from the spatial sphere. Williams (1951: 104), in his critique of the 'myth of passage', gives the following resumé:

> So far as one can interpret these expressions into a theory, they have the same purport as all the immemorial turns of speech by which we describe time as moving, with respect to the present or with respect to our minds. Time flows or flies or marches, years roll, hours pass. More explicitly we may speak as if the perceiving mind were

> stationary while time flows by like a river, with the flotsam of events upon it; or as if presentness were a fixed pointer under which the tape of happenings slides; or as if the time sequence were a moving-picture film, unwinding from the dark reel of the future, projected briefly on the screen of the present, and rewound into the dark can of the past. Sometimes, again, we speak as if the time sequence were a stationary plain or ocean on which we voyage, or a variegated river gorge down which we drift; or, in Broad's analogy, as if it were a row of house fronts along which the spotlight of the present plays. "The essence of nowness," Santayana says, "runs like fire along the fuse of time."

What the philosophers soon became aware of, is that if one attempts to apply the logic of movement to the analysis of time, one commits oneself to postulating a meta-time or hyper-time in which the movement of time takes place since motion involves a temporal dimension, and then to a meta-meta-time for the meta-time to move in, and so forth into an infinite regress. As Williams puts it (1951: 104), "the most remarkable feature of all this is that while the modes of speech and thought which enshrine the idea of passage are universal and perhaps ineradicable, the instant one thinks about them one feels uneasy, and the most laborious effort cannot construct an intelligible theory which admits the literal truth of them."

This finding of the philosopher's, and in particular this statement of Williams' regarding the literal meaning of such metaphors, cannot be ignored by the linguist. H. Clark, for example, gives no justification for his claim (1973: 5a) that "because time is required only for events with dynamic properties, time ought also to be described by expressions that involve motion through space". He then goes on to given examples of English expressions which reflect either the 'moving ego' metaphor or the

'moving time' metaphor without stopping to consider what any of these actually mean, either literally or metaphorically.

Consider, for example, such sentences as those below with which

270. Noon crept upon us

271. Friday arrived before we knew it

272. Thursday rushed by

Clark illustrates the moving time metaphor. The key to understanding the semantic content of such sentences as these, which if interpreted literally are tautologous or involve us in the infinite regress mentioned above, is very likely the existence of the two temporal axes--the absolute and the relative--which we operate with and which we from time to time put into correspondence with each other by equational sentences such as those in 169., 170., 173. Thus 271., for example, could be interpreted as "the measure of the time between the last time we looked at the calendar (i.e. making an equational statement) before our making the statement 'Today is Friday' and the time of this latter statement was short according to our subjective (private) time ruler"--i.e. we were very busy, i.e. too busy to notice the time (i.e. to make equational statements between "now" and the calendar). The opposite situation pertains when someone utters such sentences as 273. and 274. Thus, what is peculiar about these

273. The days dragged by

274. I thought Friday would never come

'moving time' metaphors is that they are used not to say anything informative about the temporal specification of observable situations but rather to express mental or emotional conditions, such as

preoccupation, having lots to think about or do, forebodings, boredom (e.g. 273.), and anticipation (e.g. 274.). Thus, what we are in fact doing when we talk of time dragging or flying by, as if it were going past us with a low or high velocity, i.e. as covering a temporal extent in a longer or shorter length of some meta-time, is expressing the relation between the length of time between two events (of calendar or clock checking) as measured on the absolute scale and as measured subjectively. If time flies, then the length of time seems shorter than it really is; if time drags on, then it seems longer than it really is.

If we now look at the so-called 'moving-ego' metaphor, examplified by sentences 275. to 278. (from H. Clark, 1973), we find

275. Trouble lies ahead

276. We are just coming into troubled times

277. I look forward to Monday

278. John will be here from Monday on(ward)

a somewhat different situation. Either events or states of affairs are being located (here, in the future) or being measured and, as we have suggested earlier, neither of these requires a dynamic spatial model for their explication (cf. § 7.4.2). This view is also held by Williams, who formulates it in a rather clear fashion (1951: 105, 107):

> True motion then is motion at once in time and space. Nothing can "move" in time alone any more than in space alone, and time itself cannot "move" any more than space itself. "Does this road go anywhere?" asks the city tourist. "No, it stays right along here," replies the countryman. Time "flows" only in the sense in which a line flows or a landscape

"recedes into the west". That is, it is an ordered extension. And each of us proceeds through time only as a fence proceeds across a farm: that is, parts of our being, and the fence's, occupy successive instants and points, respectively. There is passage, but it is nothing extra. It is the mere happening of things, their existence strung along in the manifold.

.... the mere further-along-ness of successive segments, either of a spatial or of a temporal stretch, can quite logically be conceived as a degenerate sort of change, as when we speak of the flow of a line or say that the scenery changes along the Union Pacific.

However, although the notion of moving time need not, or even cannot, be invoked to explain the meaning of these expressions, this is not to deny that the linguistic validity of such metaphors must be entertained if one wishes to account not only for the actual dynamic expressions which appear in such locutions (e.g. 'come/go', 'fly by', 'creep up') but also perhaps for the opposing ways in which directionality or polarity is assigned to the temporal axis. Thus our use of 'before' and 'after', which one would expect to correlate in their polarity with 'in front of' and 'behind', do so if the 'highway of events' is conceived as moving through the ego's 'now' into his 'past' such that the end of each event which 'leads the way', i.e. reaches the ego first (cf. § 3.3.1), is the 'front' and thus events <u>in front of</u> it are <u>before</u> it and events <u>behind</u> are <u>after</u>. The expression 'ahead', as H. Clark has astutely observed, can be used with both polarizations--in 279.

279. We'll be in Paris in the days ahead of Christmas

the 'moving time' metaphor is relevant, in 280., the 'moving ego' metaphor.

280. We'll be in Paris in the days ahead (of now)

7.6.2.3 A partitive analysis of border-crossings

Let us return now to our investigation of the 'concrete' journey described in sentence 268., which is like that of a moving scale past a stationary indicator. We notice, first of all, that there are alternative ways of expressing different stages in the progression of the train across the border:

281. a. The train is part-way across the border

b. Part of the train is across the border

282. a. The train is half-way across the border

b. Half of the train is across the border

283. a. The train is {most of the way / almost all of the way} across the border

b. {Most of / Almost all of} the train is across the border

284. a. The train is (all the way) across the border

b. (All of) the train is across the border

Only the a. type of sentence is possible with such a journey as described by 267.--cf. 285.

285. a. John is half-way across the Forth Bridge

b. *Half of John is across the Forth Bridge

This suggests that we must introduce a partitive structure into our characterization of a border-crossing such that the minimal case of a point passing between contiguous locations results only when A, the moving object, is conceived of as a point, i.e. with no parts, and this will depend, at least partially, upon an interaction of the actual extent of A and its velocity, i.e.

essentially pragmatic factors. Thus, for A to cross a border is, most generally, for all of A to cease being on one side of the border and for all of A to come to be on the other side of the border. In between these initial and final locational relations will be that of part of A being on one side of the border and part of A being on the other side of the border. This corresponds to A being located between B and C in the case of the kind of extended journey discussed in the previous sections. That there is, in this type of border-crossing as well, an intermediate locational relation between the initial and final ones is also reflected by the fact that the verbs of aktionsarten can be inserted in such sentences as 268.--i.e. such border-crossings have phases:

286. The train began crossing the border

287. The train continued crossing the border

288. The train stopped crossing the border

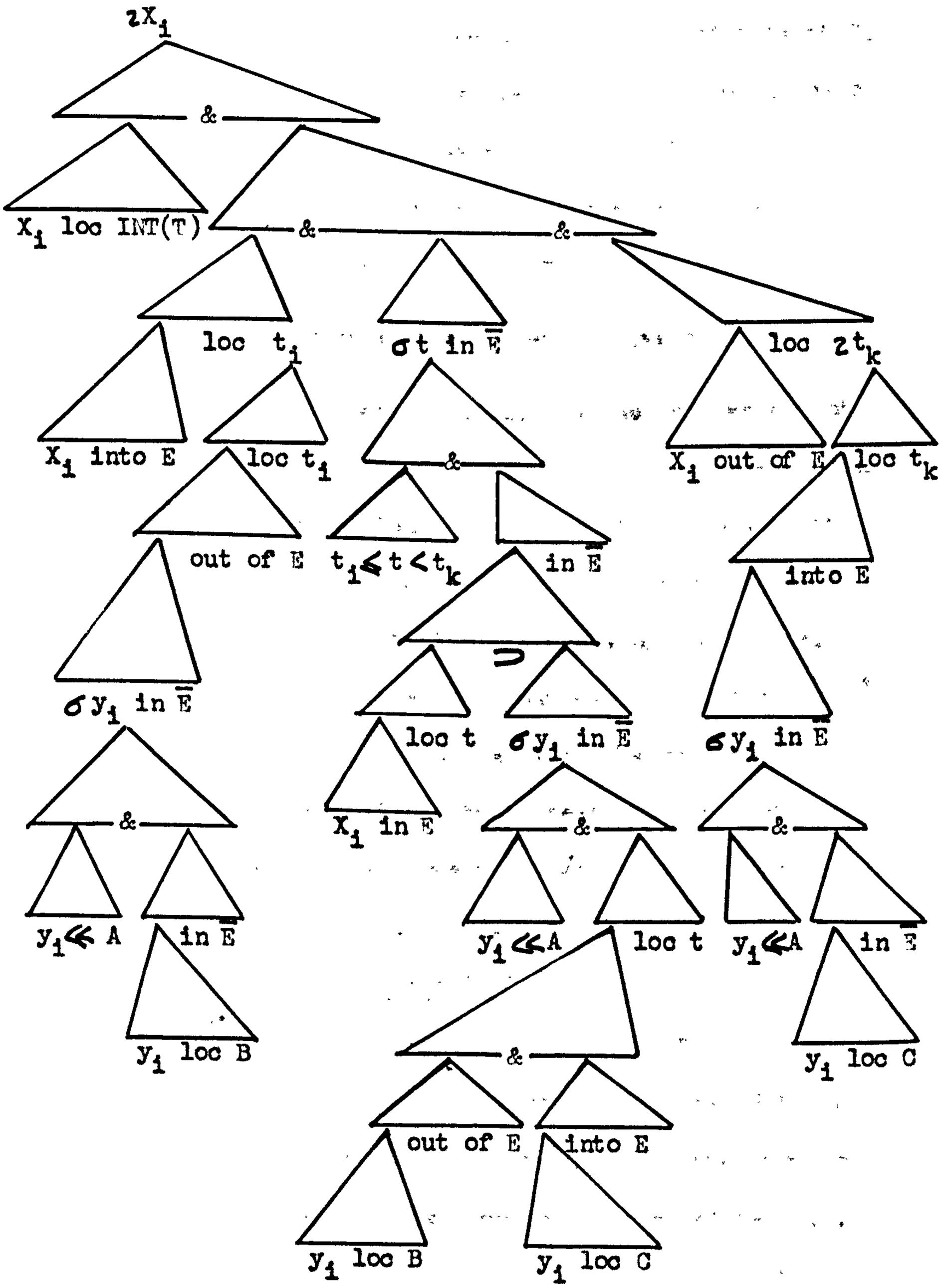
289. The train finished crossing the border

Although there are other more mathematically precise or satisfactory ways of treating the compositional nature of objects, let us work on the simplifying assumption that a bounded object such as a train can be conceptualized as consisting of a finite number of parts which, for the purpose of crossing a border, are minimally thin cross-sections such that we can say that the train's crossing of the border involves the successive crossings of its cross-sections, which can then be treated as minimal border-crossings were treated in § 7.5.1. Letting the symbol $\ll$ represent "is a part of", we can now propose (most tentatively) 291. as an

underlying structure for 290., where A, for example, is a train.

290. A's crossing (of) the border between B and C

291.



In 291. we have let B stand for "on B's side of the border between B and C" and C for "on C's side of the border between B and C". This structure can be glossed as "the X such that it is in time and such that it begins with it ceasing to be the case that all of A is at B, it ends with it coming to be the case that all of A is at C, and at all times at which it is in existence, it is also the case that there is a part of A which crosses from B to C".

In the case of sentences such as 264. (repeated below), in which a collective noun phrase identifies the moving object, it

264. The battalion crossed the border in five minutes

is not a part-whole relation which is involved but rather one of class inclusion or class membership. That is, the journey begins with all members of the battalion on one side of the border and ends with all of them on the other side and while the journey is in progress, members of the battalion are crossing the border. However, given the similarities which a part-whole logic and a logic of classes display at a higher level of abstraction (cf. Feys&Fitch, 1969; Goodman, 1966), that these two types of construction should behave analogously in such structures as 291. is not surprising (cf. also Dik, 1972).

7.6.2.4 A partitive analysis of extended journeys

Having generalized our characterization of a border-crossing to accommodate a moving object with extension, it remains for us to generalize in a similar manner the structure we have proposed for an extended journey between two non-contiguous points, i.e.

across an expanse. Consider in this respect sentence 266., repeated below for convenience. The journey which is described

266. The mile-long train crossed the Forth Bridge in five minutes

here is that which begins with <u>all</u> of the train on one side of the bridge and ends with <u>all</u> of it on the other. Thus there is a potential ambiguity in a sentence such as 292. which turns on the

292. The train is half-way across the Forth Bridge

pragmatic facts concerning the relative lengths of the train and bridge. 292. could be equivalent either with 293. or with 294.

293. The train is mid-way between the start and the end of the bridge

294. Half the train {has reached / is on} the other side of the bridge

Rather than going into details of the elaborated structure required for this most general conception of a journey, which will simply involve the insertion of partitive (or class-membership) configurations into 225. in a manner analogous to the way in which they were added to the characterization of a border crossing, we should like now to take up again, in slightly more informal and programmatic terms, the application of the framework we have developed for concrete journeys to the analysis of sentences which, we would like to claim, describe journeys of a more abstract kind.

7.6.3. Sentence types describing journeys of a less concrete nature.

7.6.3.1. Consuming, expelling, filling up and emptying out.

The sentences to be discussed in this section are not really any less concrete than those we have investigated above (although they do have abstract counterparts) since they all involve the movement of a physical object either into/onto or out of/off of some location object. However, their superficial structure is such that the parallelism is obscured. This is partly due to the fact that the verbs in such sentences, as with 'cross', lexicalize elements of the directional structure (cf. Gruber, 1965). Also, since many of these are causative sentences which describe situations in which the agent and the moving object are distinct from each other, the noun phrase identifying the moving object tends, in such instances, to be displaced from subject to direct-object position or, in the case of verbs of filling/covering and emptying/uncovering, to a yet more peripheral position. At the same time, the noun phrase identifying the goal or source of the movement may be subjectivized or objectivized, depending upon the verb. Finally, as in the case of sentences describing simple journeys to/into or out of/away from some place (cf. 'arrive'/'enter', 'leave'), the goal or source, respectively, is usually left implicit or unspecified. These various possibilities are illustrated in the following sets of sentences which are intended only as a sample of the range of such sentence-types.

295.a. The {blotter / sponge / mop} {soaked up / absorbed} the spilled ink in a few seconds.

b. Tom mopped up the spilled ink (with a sponge) in a few seconds

296. Helen {ate / devoured / consumed} the cheesecake in half an hour

297. Fred {drank / consumed / downed} a pint of lager in thirty seconds

298. The attendant filled (up) the tank (with petrol) in a couple of minutes

299. James blew up the balloon (with hydrogen) in a few seconds

300. Harry loaded (up) the van (with eggs) in half an hour

301. Mary stuffed the turkey (with breadcrumbs) in five minutes

302. Fred covered the board (with deep structures) in a matter of minutes

303. Bill sprayed the wall (with paint) in half an hour

304. My eye expelled the particle of sand in a few minutes

305. The dentist extracted the tooth in a second

306. John exhaled the toxic fumes quickly

307. The gland secreted an overdose of the hormone

308. Peter emptied the box (of its contents) in a flash

309. The children deflated the tyres in a few minutes

310. The men unloaded the van (of its goods) in half an hour

311. ?Mary unstuffed the pillow (of its feathers) in half an hour

312. Fred cleared the table (of the dishes) in a few seconds

313. Bill stripped the wall (of its paint) in a couple of days

The adjectives 'empty' and 'full', and the related verbs, can be given partitive interpretations involving negative ('none') and universal ('all') existential structures: if something is (completely) empty, then there is no part of it (or of its interior) which contains something, if it is (completely) full, then there is no part of it (or of its interior) which doesn't contain something. Similarly, if something is (completely) covered, there is no part of it (or of its

surface) which doesn't have something on it. However, there doesn't appear to be any single or neutral negative existential expression corresponding to 'covered' but rather a set of contextual variants: 'bare', 'naked', 'uncovered', 'clear', 'clean'.

Now, the relationship between such sentences as 301., 303., 310., and 313. and those below (which are durative constructions) has

314. Mary stuffed breadcrumbs into the turkey (for five minutes)

315. Bill sprayed paint onto the wall "

316. The men unloaded goods out of the van "

317. Bill stripped paint off of the wall "

given consternation to some linguists, especially those (cf. Hall, 1965; Fillmore, 1968) who would like to see the two sets as transformationally related. (For non-transformational treatments and discussion cf. Anderson, 1971b; S. Anderson, 1971; Fraser, 1971; Vestergaard, 1973; Mellema, 1974.) Although both variants appear to involve the same case relations and major lexical items, their interpretations differ in a clear-cut fashion, one reflection thereof being the different range of temporal adverbials which can occur with each set. (However, this is connected with the unbounded nature of the object identified by the direct object ('breadcrumbs'/'goods' are indefinite plural noun phrases, 'paint' a mass noun): if we replace these with bounded nominals—as below—they can then be interpreted in an accomplishment,

318. Mary stuffed the breadcrumbs into the turkey (in five minutes)

319. Bill sprayed the paint onto the wall (in five minutes)

320. The men unloaded the goods out of the van (in five minutes)

321. Bill stripped the paint off of the wall (in two days)

i.e. a single journey sense. But they are still not equivalent to

the first set (301., 303., 310., 313. respectively)). In the former case all of the moving object reaches its goal whereas in the latter all of the goal becomes filled/covered or all of the source emptied/uncovered.)

What we should like to point out is that each of the former but ~~not all~~ none of the latter set of sentences implies the corresponding sentence with the verb replaced by one of 'fill', 'cover', 'empty', and '(?)uncovered', respectively:

322. Mary filled the turkey with breadcrumbs

323. Bill covered the wall with paint

324. The men emptied the van (of (its) goods)

325. Bill uncovered the wall (of (its) paint)

('Empty' and 'uncover' tend to prefer either the objective case - that of the moving object - to be absent or, at least, to involve a possessive construction in which the moving object "belongs" to the source of the movement.) Furthermore, we can make explicit the nature of the 'holistic' interpretation of the sentences of the former set by means of the paraphrase relation which exists between them and the following elaborations of the latter set of sentences.

326. Mary stuffed breadcrumbs into {all of the turkey / the turkey} until it was {full / filled}

327. Bill sprayed paint on {all of the wall / the wall until it was covered}

328. The men unloaded goods out of {all of the van / the van until it was {empty / emptied}}

329. Bill stripped paint off of {all of the wall / the wall until it was {bare / uncovered}}

This suggests the possibility that the process of object-ivization which appears to be the transformational relation differentiating the two sets of sentences in question could be made to depend upon the presence of some such structure as that underlying the universally quantified partitive structure or, equivalently the 'until' clauses in the sentences above (cf. §8.4 for detailed discussion of 'until'). Such an analysis would account both for the case-relation identities and the meaning differences.

Now, as we have seen in our discussion of extended journeys and of border-crossings involving an object with an extension, there is a parallelism between movement towards some place (i.e. successive border-crossings resulting in the object coming closer and closer to some place) and an additive (or substractive) process (i.e. more and more—or less and less—of an object coming to be located somewhere). Stuffing and stripping or, more generally, putting (in/on) and taking (out/off), are of this latter type. But consider now the following sentences. (Examples of modes of locomotion have only been added to

330.a. Carl went to the post-office { on skis / on foot / on a bicycle }

b. Carl { skiied / walked / cycled } to the post-office

331.a. Carl moved towards the post-office { on skis / on foot / on a bicycle }

b. Carl { skiied / walked / cycled } towards the post-office

332.a. Carl moved towards the post-office { on skis / on foot / on a bicycle }
until he was at the post-office

332.b. Carl {skiied / walked / cycled} towards the post-office until he was at the post-office

highlight the parallelism between types of putting/taking and types of directed movement.) What emerges is that 'move towards C until C is reached' is to 'move/go to C' as 'put (something) into C until C is full' is to 'fill C (up)' or 'take (something) out of C until C is empty' is to 'empty C (out)'. Whereas movement to a place C involves an indefinite number of border-crossings in the direction of C, ending with that border-crossing which constitutes the reaching of C, filling (up) a space C with some substance or set of entities A involves an indefinite number of journeys of parts or subsets of A into C, ending with that journey which constitutes the inception of 6 having no part which doesn't contain (a part or subset of) A.

7.6.3.2 Acquisition and loss of knowledge

In rather crude terms, as eating or drinking is causing something of a tangible nature to go into one's stomach, so learning involves the passage of something of an abstract nature into one's head. To learn something is to incorporate it (as "knowledge") within oneself just as to forget something is to allow it to escape from one's mind. The salience of the idea of something being inside one in the case of such 'affective' situations as knowing, believing, understanding, etc. (and of being taken inside in the case of their inceptive counterparts) is revealed by the number of figures of speech pertaining to these which are based on some kind of concrete journey into a body, in particular, ones based on eating:

333. John swallowed the tale whole

334. Fred ate it up without the slightest hint of suspicion

335. Mary took in the news of the death of her husband without a word

336. The lecturer put the theory into an easily digested form

337. Bill crammed all night for the exam

338. That's food for thought

339. Jean lives on gossip

340. I'm so tired I couldn't absorb another fact if I wanted to

341. His name escaped me

However, more important than such metaphorical evidence, are the semantic and syntactic parallels which we have already noted (cf. § 4.2, § 7.2) and which have been discussed in detail in Anderson (1971b) between such sentences as those below, all of which involve a subjectivized locative (or part thereof--cf. 357.ii., 358.ii.):

342. i. The book contains many illustrations

ii. The book has many illustrations in it

343. i. The book contains the solution to the problem

ii. The book has the solution to the problem in it

344. i. John's exercise book contains the solution

ii. John has the solution in his exercise book

345. i. John knows the solution

ii. John has the solution in his head

Whether the locational relation being described in these sentences is a concrete or abstract one, this latter being either one of simple possession or of knowing, depends on a number of factors: the nature

of the object being located, the semantic properties of the verbs involved, and the animacy of the location object. The minimum requirements for interpreting the locational relation as one of knowing would appear to be that the object being located be ultimately propositional in nature (at least for the "savoir" interpretation, with which we are solely concerned) and that the location object be at least animate if not animal.

There are hosts of thorny philosophical problems connected with the semantic analysis of expressions such as 'know', 'understand', 'believe', etc. which we cannot become involved in here. However, if we assume the correctness of a locative analysis of these, then it becomes possible to apply, in principle, our characterization of a journey to the elucidation of the semantic structures underlying sentences which describe the inception and cessation of such

locational relations.[1] In particular, we noted in §7.2 that the journey paradigm for learning something and forgetting something tends to be a partitive one rather than one of movement towards. This suggests that, informally, the abstract journey described in 346. below is that which begins with it ceasing to be the case that

346. Mary's learning of the poem

Mary knows none of the poem and which ends with it coming to be the case that she knows all of it, and is such that all the while it is in progress, there is some part of the poem which Mary comes to know.

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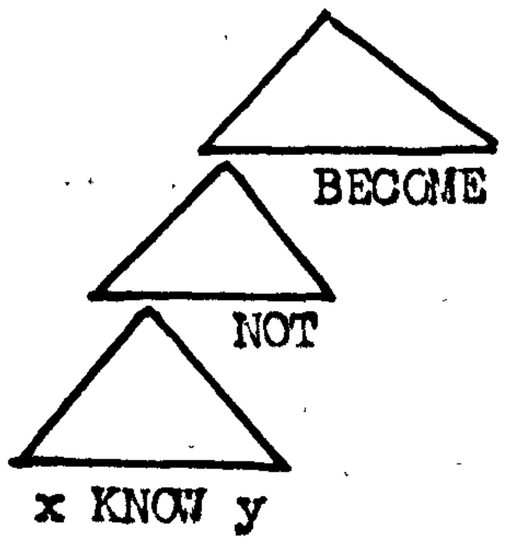
[1] Cf. also De Rijk (1974) who adduces a number of facts--interpretation potential, selectional restrictions and co-occurrence relations--in support of a semantic analysis of 'forget' in terms of the semantic representation below:

1.



However, he observes that there is a problem with such a representation as 1. since it predicts (given the apparatus of predicate raising and lexical insertion of generative semantics) that 'forget' should be synonymous with 'cease to know'. However, in view of the fact that 2. below is ambiguous whereas 3. is not, this

2. I have ceased to know the names of my students

3. I have forgotten the names of my students

prediction is found to be not borne out. Although we cannot go into the details of his discussion here, it is interesting to note that De Rijk suggests, following a proposal by Dean-Fodor, that an ultimate resolution of the problem will reside in treating BECOME as a complex semantic predicate derived from a conjoined structure essentially equivalent to that which we have assigned to <u>into E</u>.

If what is being learnt is learnt as a whole, just as an object crossing a border may be treated as a point, then the journey is a simple minimal border-crossing as, for example, learning a name or a word. (But again, this is a variable: one may know only part of a name or only part of a word.) Forgetting something would be the passage from knowing all of something to knowing none of it.

However, if we are to suppose that 'A learn X' and 'A forget X' are similar to 'A enter C' and 'A leave C', i.e. in describing transitions from a positively specified location to its complement, or vice versa, we find ourselves faced with the problem of accounting for the 'from' expression which occurs with 'learn' and which we would expect to identify the starting location of the journey--cf. 347. The

347. a. Mary learnt the poem from Paul

b. Mary learnt the poem from a book

situation here is similar, we would suggest, to that in the sentences in 348. What is involved in all of these is the location of an

348. a. Mary ate her dinner $\left\{\begin{matrix}\text{from}\\ \text{out of}\end{matrix}\right\}$ the pot

b. Fred drank his coffee $\left\{\begin{matrix}\text{from}\\ \text{out of}\end{matrix}\right\}$ a glass

c. We left London from King's Cross

d. John is sitting outdoors on the veranda

object inside or outside of an object or place, or a transition between the two, supplemented by a more precise identification of the object's (initial) location within this place. In 348.d. John is first located outside of some building, and then a specific location within the "outdoors" is added. In 348.c., a transition between being in London and not being in London is primarily involved, but then additional specification is given as to the precise place in London from which the transition begins.

Similarly, 'out of a mug' in 348.b. specifies more particularly the place at which the journey of the coffee from outside to inside Fred begins. Note in this connection that the French equivalents to 348.a. and 348.b. contain a locational rather than a source expression:

349.a. Marie a mangé son dîner dans le casserole

b. Fred a bu son café dans un verre

Thus, we appear to have two descriptions of the same journey, one more specific than the other. The less specific one is realized essentially by the verb plus its object, the source of the more specific one being realized by a 'from' or 'out of' phrase. In 350. below, both the source and the goal of the more fully specified journey receive overt expression:

350. We crossed the Channel from Dover to Calais

The two descriptions of the same journey are separated in the following sentences:

351. a. We crossed the Channel ≡ we went from one side of the Channel to the other

b. We went from Dover to Calais

In general, it would seem to be the case that locational relations and journeys can be superimposed upon each other. In the cases above, the more specific journey is superordinated to the more general and this latter is encoded primarily by the verb. The reverse embedding is, of course, also possible but this will, in such cases as 351., prevent incorporation and, as Gruber (1965) has

observed, the more general source and goal specifications tend to be realized as simple locationals:

352. We went from Dover to Calais across the Channel

'Across the Channel' in 352. is most naturally interpreted in the static locational (as opposed to the static extensional--cf. § 7.3.2) sense of "on the other side of the Channel (from Dover)". There is also a third possibility whereby 'on one side of' and 'on the other side' are (appositional) modifiers of 'Dover' and 'Calais', respectively. Since the two expressions are, in such cases, no longer co-constituents, there is no possibility of lexicalization to 'across':

353. We went from Dover, on one side of the Channel, to Calais, on the other side of the Channel

Returning now to 347.a. and 347.b., we can assume that these also represent the conflation of two simultaneous, 'compatible' journeys. The more general one, realized by 'learn the poem', involves the (extended) border-crossing between the complementary states of knowledge of (all of) the poem not being at/in Mary and knowledge of (all of) the poem being at/in Mary. The more specific journey, partially realized by 'from Paul/the book' involves the passage--or, more accurately, perhaps the extension or spreading--of knowledge of (all of) the poem from Paul or from the book to Mary. This latter journey allows for, but does not require, that Paul was responsible in an active sense for Mary's learning the poem. That is, whereas 354. implies

354. Paul taught the poem to Mary

347.a., the converse does not necessarily hold. For the same reasons, 347.b. is entirely acceptable despite the oddness of 355.

355. $\left.\begin{matrix}\text{The}\\ \text{A}\end{matrix}\right\}$ book taught Mary the poem

7.6.3.3 Growth, transformations, translations, performances and instantiations

Our remarks in this and the following section will, again, be mainly of an observational and programmatic nature. Time and space have not permitted a deeper investigation into the problems connected with the semantic description of the sentence types to be discussed below. However, it is felt that all of these represent particularly interesting manifestations of the logical constructs we have invoked in our characterization of a journey and that the framework developed and outlined in the preceding sections will ultimately be able to accommodate them all.

Consider first sentences describing growth and extension, i.e. increase in the size of some entity. Sentences 356. and 357. can both be paraphrased in terms of an increase in the measure (along

356. a. John grew two inches during the summer

b. John grew to a height of six feet during the summer

357. a. The steel rails expanded two inches during the heat wave

b. The steel rails expanded to a length of twenty feet

two inches during the heat wave

one or more dimensions) of the object or the reaching of a point on a scale which is further from the origin, the zero mark, than before:

358. a. John's height increased (by) two inches during the summer

b. John's height increased to six feet during the summer

359. a. The length of the steel rails increased (by) two inches during the heat-wave

b. The length of the steel rails increased to twenty feet two inches during the heat-wave

Now, the natural increase in the extension of an object, which is ultimately a journey into a state of greater extension, is often accompanied by a change in the object's structure or form and hence by a change in the class of entities to which it is a member. Or, the state of greater extension may itself require a change in its classification. Compare the following sentences:

360. a. The baby grew into a strapping youth

b. The acorn grew into a magnificent oak tree

c. The town grew into a city

There are, in addition, abstract counterparts to these sentences, as illustrated in 361.

361. a. The fighting grew into a full-scale war

b. My dislike of him grew into hatred

What is distinctive about the sentences in 360. and 361. is that they involve a use of 'grow' which is consistent with both its basic, concrete sense as exemplified in 356. and its extended usage as more or less equivalent to 'become' (but see below). That is, each of 360. and 361. imply a sentence describing simply growth as well

as one describing simply entry into a new class:

362. a. i. The baby grew

ii. The baby became a strapping youth

b. i. The acorn grew

ii. The acorn became a magnificent oak tree

c. i. The town grew

ii. The town became a city

363. a. i. The fighting grew

ii. The fighting became a full-scale war

b. i. My dislike of him grew

ii. My dislike of him became hatred

(The verb 'develop' behaves in a similar fashion.) In contrast, the sentences below, which exemplify 'grow' in its purely inceptive meaning, imply only a 'become' sentence.[1]

364. a. i. Mary grew into a bitter and cynical spinster

ii. Mary grew

iii. Mary became a bitter and cynical spinster

---

[1] These examples are probably deceptive in that 'Mary', 'Fred' and 'Shaun' are quite likely subjectivized possessors of some emotional or mental condition which latter is what grows or, more neutrally (cf. below), increases or decreases in intensity or degree--cf. the following

1. a. Mary's idealism grew into cynicism

b. Mary's idealism decreased

2. a. Shaun's contentment with his job grew into dissatisfaction

b. Shaun's contentment with his job decreased

364. b. i. Fred grew tired of our company

ii. Fred grew

iii. Fred became tired of our company

c. i. Shaun grew dissatisfied with his job

ii. Shaun grew

iii. Shaun became dissatisfied with his job

Of particular interest are the following pairs of sentences:

365. a. i. Joan has grown fat

ii. Joan has grown thin

iii. Joan has grown

b. i. My brother has grown taller

ii. My grandmother has grown shorter

iii. My grandmother has grown

In these, the iii. sentence describing simple growth is not only not implied by the ii. sentence but is inconsistent with it.

What, in fact, appears to be involved in the extension of the meaning of 'grow' is the loss of a positive polarity or directional element. In its basic and concrete application, 'grow' indicates a positive development or movement--i.e. an increase in the physical size of an object (cf. 360.). In its basic but abstract application an increase in degree or intensity is indicated (cf. 361.). Used in its extended sense, however, 'grow' indicates either positive or negative development or movement--i.e. the distinction between an increase and a decrease in size, degree, intensity, etc. is lost (cf. 364., 365.). Nevertheless, the element of continuous or gradual development through different degrees or stages of a particular

condition or property is maintained and distinguishes 'grow' in its extended sense from the simple inceptive 'become', which latter focusses solely on entry into a particular state which need not represent the possible culmination of a (positive or negative) development. Furthermore, 'grow' would appear to imply a lack of wilful control whereas 'become' does not. Compare in these two respects the sentences in 366.

366. a. i. Mary became a completely different woman after leaving her husband

ii.?* Mary grew into a completely different woman after leaving her husband

b. i. John became a farmer instead of a businessman

ii?* John grew into a farmer instead of a businessman

Now, the difficulty with the semantic analysis of sentences such as 360.b. (or its equivalent in 367.) which, as we shall find,

367. A magnificent oak tree grew out of the acorn

is similar in nature to that of existential causatives, is that the entity which functions as the moving object in the journey being described does not remain the same kind of object throughout the entire journey, for that is the very essence of the passage. The object undergoes a change in its class-membership. Thus, 368. is odd in the same way as 370. while both 369. and 371. are acceptable.

368. ?What { happened to the oak tree? / did the oak tree do? } It grew out of an acorn

369. What { happened to the oak tree? / did the oak tree do? } It fell on top of the house

370. ? What did Jack do to his house? He built it

371. What did Jack do to his house? He painted it

In other words, in 360.b. 'the acorn' identifies both the moving object and its original class location and likewise 'a magnificent oak tree' in 367. identifies both the moving object and its final class location.

This situation is in contrast to the transformation described in 372. and 373. In 372., the fact that the entity undergoing the transformation has a proper name makes it possible to refer to it independently of its class. In 373., on the other hand, it is the existence of a superordinate term 'house' of which 'mansion' and 'hovel' are co-hyponyms that again enables the object being transformed to be isolated from and identified independently of either of its initial and final class locations. Such sentences conform to the characterization of a journey we have developed so far. Sentence 373., for example, describes the journey which begins with it ceasing to be the case that the house is a mansion (i.e. in the class of mansions) and ends with it coming to be the case that the house is a hovel (i.e. in the class of hovels). Sentence 360.b., on the other hand, requires that the parameter identifying the moving object include or comprise its initial class location: the journey begins with the entity which up till then has been an acorn ceasing to be an acorn and ends with it (i.e. the entity which up to the beginning of the journey was an acorn) coming to be an oak tree.

Let us turn our attention now to somewhat different kinds of

372. a. John grew from a timid youth into a ruthless killer
b. Bitterness transformed John from a timid youth into a ruthless killer

373. a. The house changed from a mansion into a hovel
b. Neglect transformed the house from a mansion into a hovel

transformations or mappings, namely those illustrated below. The a. sentences are their locational counterparts. In view of the

374. a. The instructions were {written / spoken / read / transmitted} in French

b. Peter translated the instructions from French into English

375. a. The concerto was {written / performed / played} in C major

b. Michael transposed the concerto from C major into D major

376. a. The letter was {written / taken down} in shorthand

b. The secretary transcribed the letter from shorthand into longhand

377. a. The text was (written) in Cyrillic

b. Jim transliterated the text from Cyrillic into Roman

implicit or explicit journey involved in each of the a. sentences (i.e. the writing of the instructions, the performing of the concerto, etc.--cf. below), the locative phrase could plausibly be related in its semantic function to the locative-instrumental function of 'in a Fiat' in 378.a. Compare 378. with 379. If such an

378. a. i. John travelled to Moscow in a Fiat

ii. The trip/journey to Moscow was carried out in a Fiat

b. John used a Fiat to travel to Moscow (in)

379. a. i. John encoded the directions in Morse

ii. The directions were encoded in Morse

b. John used Morse to encode the directions (in)

analysis is correct, then French, C Major, shorthand, Cyrillic in 374. to 377. are, in some sense, 'vehicles' or 'means of transport' for various kinds of abstract journeys. However, whatever the ultimate nature of these locatives, it is obvious that they function as the initial or final locations of the other abstract journeys described by the b. sentences. It appears that in the semantic analysis of these (as well as in the simple locatives) it will be necessary to treat such entities as instructions, concertos, letters and texts as abstract entities which have a definite structure which is independent of any concrete manifestation (e.g. realizations within different 'codes'). That is, the same abstract structure can be mapped into different concrete structures; and linguistically it is this abstract structure which is treated as the object which journeys out of one concrete encoding into another.

However, there is yet another dimension to the b. sentences in 374. to 377. which must be taken into account in their semantic description--namely, that of the existential causative. Sentences 380. to 383. below reveal that these sentences enter into a double relation of consequence (cf. §8.2.2), one in which the consequent is a locative sentence like the a. sentences in 374. to 377. and one in which the consequent is an existential sentence. What

380. a. Peter has translated the instructions from French into English

b. i. The instructions are (written) in French

ii. There $\left\{\begin{matrix}\text{exists}\\ \text{is}\end{matrix}\right\}$ a French translation of the instructions

381. a. Michael has transposed the concerto from C major into D major

b.i. The concerto is (written) in D major

ii. There is a D major transposition of the concerto

382. a. The secretary has transcribed the letter from shorthand into longhand.

b.i. The letter is (written) in longhand

ii. There is a longhand transcription of the letter

383. a. Jim transliterated the text from Cyrillic into Roman

b.i. The text is (written) in Roman (script)

ii. There is a Roman transliteration of the text

is brought into existence is another version, i.e. another and different concrete manifestation of the abstract structure. Because of this one—many relationship, the same abstract entity can be located simultaneously in different encodings. Thus 384. is not contradictory as is 385., which latter involves concrete locational relations:

384. The instructions are in both French and English

385. *John is in both Paris and London

Somewhat similar is the process of copying which, although involving change of physical location rather than change of code, executes this change by causing another more or less identical concrete instance of the entity concerned to come into existence—cf. 386. and 387. The existential causatives implicit in all of

386. a. John has copied the diagram from the board into his note-book

b. i. The diagram is in his note-book

ii. There $\left\{\begin{matrix}\text{exists}\\\text{is}\end{matrix}\right\}$ a copy of the diagram (in his note-book

387. The figure is both on the board and in John's note-book

380.a. to 383.a. and 386.a. can, of course, be made explicit as in the following (cf. below):

380. c. Peter has $\left\{\begin{matrix}\text{made}\\\text{produced}\end{matrix}\right\}$ a French translation of the instructions

381. c. Michael has $\left\{\begin{matrix}\text{made}\\\text{produced}\end{matrix}\right\}$ a D-major transposition of the concerto

382. c. The secretary has $\left\{\begin{matrix}\text{made}\\\text{produced}\end{matrix}\right\}$ a longhand transcription of the letter

383. c. Jim has $\left\{\begin{matrix}\text{made}\\\text{produced}\end{matrix}\right\}$ a Roman transliteration of the text

386. c. John has $\left\{\begin{matrix}\text{made}\\\text{produced}\end{matrix}\right\}$ a copy of the diagram in his note-book

Finally, let us return to the kind of mappings which we made brief allusion to in the discussion of the sentences in 374. to 377., that is, those 'realization processes' such as are described by the following sentences:

387. Fred wrote out the address (three times)

388. Jeff read (out) the directions (three times)

389. Mary $\left\{\begin{matrix}\text{performed}\\\text{sang}\end{matrix}\right\}$ the song (three times)

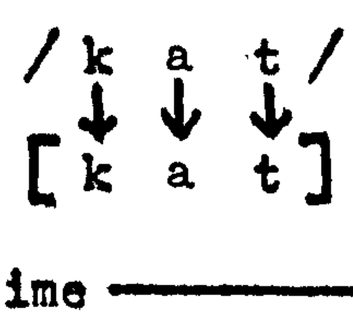
390. Sally recited the poem (three times)

391. The army {performed / executed} the manoeuver (three times)

392. The couple executed the dance step (three times)

The complex mappings from an abstract to a concrete structure involved here are comprised ~~by~~ of a bounded series or sequence of simple mappings or journeys, starting with that from the beginning of the abstract structure to the beginning of the concrete structure and ending with that from the end of the abstract structure to the end of the concrete one. Compare the graphic representation in Figure XV of the simplest case of a serial one-to-one mapping of a

Figure XV



linear abstract structure onto a linear concrete one. This is what Verkuyl appears to mean by "temporalizing" an abstract linear entity (cf. § 6.3.4.5). These sentences are also existential in nature since, in perhaps oversimplified terms, a 'token' of a 'type' is brought into existence. Again, the following type of sequence is odd:

393. What did Fred do to the address? He wrote it out

394. What did Sally do to the song? She sang it

395. What did the army do to the manoeuver? They executed it

Possibly these performances differ from basic existential causatives (cf. below) only in that the former involve the prior existence 'in the abstract' of the physical object to be created; that is,

a 'blue-print' (or 'recipe' or 'pattern' or 'model') for carrying out the existential journey already exists. Thus, in 396. to 399.

396. Fred's contracting company has built that house many times

397. I've baked that cake before

398. Mary has {made / sewn} that dress / knitted that sweater } for many customers

399. Peter has painted that landscape over and over again

the direct object does not identify an 'object of result', as it does in 400. to 403. below, but rather the model or template,

400. Fred's contracting company has built a house

401. I've baked a cake

402. Mary has sewn a dress

403. Peter has painted a landscape

i.e., in some sense, the starting point for (past) existential journeys ending with such objects of result. Let us now give somewhat more explicit attention to existential journeys in their own right, i.e. sentences describing the coming or bringing into existence (or the going or taking out of existence) of some entity.

7.6.8.4 Creation and destruction

Although sentences describing causative existential journeys appear to be the more common, non-causatives also exist. For example, there are those like 360.b./367. involving the growth of an entity, this resulting in a new (kind of) entity coming into existence. There are also the sentence types we considered in § 7.4.3 concerning the coming into and going out of existence of

species, geographical phenomena, and individual animates.

Consider also the following sentence types:

404. A snow drift built up beside the house overnight

405. A blister formed on my hand

406. a. John developed a rash on his chest

b. A rash developed on John's chest

Of particular interest is 406.a., which illustrates again the tendency for the animate argument to be subjectivized. 406.a. and 406.b. are dynamic counterparts of the existential locatives in 407.

407. a. John has a rash on his chest

b. There is a rash on John's chest

The range of possibilities is much greater in the case of existential causatives and there appear to be several subclasses of verbs which participate in describing such existential journeys. We have already discussed the various 'trans'-verbs and verbs of copying and performance, all of which involve an existential dimension. In addition, there are what appear to be verbs of pure existential causation: 'create', 'compose'[1] 'concoct', 'construct'/

---

[1] 'Compose' has as hyponyms such verbs as 'write'/'paint'/'draw'/'sketch' and is perhaps different from 'construct'/'build' only in the 'artistic' nature of its object of result. These verbs do not occur in the sentence patterns in 409. to 419. below. Rather than involving a change in the form of an entity, sentences with these verbs describe a composition, arrangement or structuring of a number of elements, which latter constitutes the entity being brought into existence.

'build'/'fabricate', 'produce', 'make'/'form'/'fashion', 'destroy', 'kill'/'murder'/'assassinate', 'annihilate', 'exterminate' (these latter three being causative counterparts of such predicates as 'die(out)', 'perish', 'go extinct', etc. which we considered in §7.4.3). 'Make' is somewhat different from the other (positive) existential causatives and, as we shall see, has a large number of hyponyms.

Consider, for example, sentences 408.a. and 408.b. below

408.a. John made a pumpkin out of the coach

b. John made the coach into a pumpkin

(taken from Gruber, 1965--cf. also Fillmore, 1970; Sgall, 1972) which are causative counterparts to sentences 360.b. and 367. and are equivalent in the same way. What has not been remarked upon is that there is a very large number of verbs which participate in sentences of the same structure as 408.a. and 408.b. and that all such sentences imply the corresponding one with 'make' replacing the particular verb. A selection of these are given below:

409. a. Fred whittled an arrow out of the branch

b. Fred whittled the branch into an arrow

410. a. John chiselled a canoe out of the tree trunk

b. John chiselled the tree trunk into a canoe

411. a. Peter chipped an arrowhead out of the stone

b. Peter chipped the stone into an arrowhead

412. a. Mary twisted a rope out of the fibres

b. Mary twisted the fibres into a rope

413. a. Bill hammered a shield out of the metal

b. Bill hammered the metal into a shield

414. a. Freda mixed a martini out of the vermouth and gin

b. Freda mixed the vermouth and gin into a martini

415. a. Paul folded an aeroplane out of the sheet of paper

b. Paul folded the sheet of paper into an aeroplane

416. a. Jim rolled a cigarette out of the tobacco

b. Jim rolled the tobacco into a cigarette

417. a. Tom sculpted a figure out of the marble

b. Tom sculpted the marble into a figure

418. a. Sue sewed a quilt out of the scraps of material

b. Sue sewed the scraps of material into a quilt

419. a. Katinka knitted a sweater out of the wool

b. Katinka knitted the wool into a sweater

If the 'out of' and 'into' phrases are omitted in the a. and b. sentences, respectively, the resulting sentences are still acceptable but only the a. variants continue to have an existential causative interpretation. (An 'objet affecté' interpretation also becomes possible but can be eliminated by introducing a beneficiary ('himself'/'herself', 'Harry') after the verb--cf. 420.) Also, the b. variant no longer implies the corresponding sentence

420. a. Jim rolled (himself) a cigarette

b. Jim rolled (*himself) the tobacco

with 'make': 420. a. implies 421. a. but 420. b. does not imply

421. b. Furthermore, in general, it is only in the a. sentence-type

421. a. Jim made a cigarette

b. Jim made the tobacco

in 408. to 419. that the other verbs of pure existential causation can figure, as demonstrated in 422. to 423. 423. a. is implied by both of 416. a. and 416. b. Furthermore, the a. and b.

422. a. Fred {built / constructed} a house (out of the logs)

b. *Fred {built / constructed} the logs into a house

423. a. Jim {produced / created} a cigarette (out of the tobacco)

b. *Jim {produced / created} the tobacco into a cigarette

sentences in 408. to 419. all imply the corresponding sentences with the verb replaced by 'transform' (cf. 424), suggesting that these are essentially sentences describing change of form and only

424. Jim transformed the tobacco into a cigarette

co-incidentally existential causation.

All these observations suggest that a sentence such as 416. a. is semantically composed of three related propositions as expressed separately by the sentences in 425. The triple 423. a. (with its 'out' phrase), 425. a. and 425. b. can then be seen to parallel ~~that~~ the triple

425. a. Jim {produced / created} a cigarette

b. Jim caused {a cigarette to develop out of the tobacco / the tobacco to develop into a cigarette}

c. Jim rolled the tobacco

below which was discussed in § 7.6.3.2. That is, 423. a.

426. a. Mary learnt the poem from Paul

b. Mary learnt the poem

c. Knowledge of the poem went from Paul to Mary

represents a conflation of a basic existential journey (the sheer coming-into-existence of an entity) and a compatible, simultaneous but more specific journey of an entity between classes based on form. 416. a. represents the further conflation of 423. a. with 425. c. which describes the activity by means of which the transformation/creation was accomplished (cf. our discussion in § 7.6.3.1 of the conflation of verbs of modes of locomotion with 'move/go/come to someplace' and verbs of modes of putting (something) into/onto (something) with 'fill/cover something with something').

If one decides to regard sentences such as 425. a. as describing a border-crossing between non-existence and existence, i.e. sheer genesis, and not simply as elliptical or unspecified versions of sentences such as 423.a., then the basic problem in their semantic description is that this would seem to commit one to accepting the notion of movement of non-existing entities, which Aristotle, as we have seen (cf. § 6.2.2), found objectionable. There are of course substantial philosophical difficulties involved here, which a fuller investigation would have to take into account. However, as linguistically it appears entirely appropriate to treat 'genesis' and 'perishing' in a fashion analogous to more concrete border-crossings and as such a treatment is naturally accommodated within our framework, we see no reason not to analyse them in such a manner.

A somewhat similar problem presents itself, however, in actually applying our analysis of an extended border-crossing--i.e. a border-crossing by an object with extent--to sentences

describing existential journeys which tend to follow the partitive paradigm (cf. 427.). The relation "is a part of" which figures in

427. Katinka has knitted { none / part / half / most } of the sweater

the rppresentation in 291. is well defined at a particular moment only if both arguments are in existence at that time; and in 428., for example, the (whole) sweater exists only at the moment the

428. Katinka knitted a sweater

existential journey is finished. However, there is no problem here if in the analysis of sentences such as 428. to 431. the existence of the sweater at some time (past, present or future) is

429. Katinka will knit a sweater

430. Katinka is knitting a sweater

431. I expect Katinka to knit a sweater

asserted (or predicted, promised, etc.) and the existential journey defined retrospectively, so to speak, from that time. Thus, for example, sentence 430. would have a semantic representation which could be glossed (with much simplification) in the following manner: "In existence at the moment $\underline{t}_o$ is the process X such that there is a time $\underline{t}$ at which there exists a sweater S such that X begins with it ceasing to be the case that there exists no entity $\underline{p}$ such that at $\underline{t}$ $\underline{p}$ is a part of S and such that X ends with it coming to be the case that all parts $\underline{p}$ of S exist". Since the journey as described in 430. is not finished (§ 7.4.4) $\underline{t}$ will necessarily follow $\underline{t}_o$ and

since the happening or existence of events and situations in the future of a given moment cannot be guaranteed but only predicted, promised, judged as being likely, etc., a modal element is introduced. However, this, we claim, has nothing to do with the journey itself--for example, such an element is completely absent in 428.--but rather with the interaction of tense and aspect with the inherent boundedness of a journey and the fundamental asymmetry between the 'closed past' and the 'open future'. Accordingly, sentence 432. below

432. Katinka was knitting a sweater when I visited her last week

asserts only that the process which ends with a sweater coming into existence is in progress and is non-committal as regards whether or not the sweater actually comes into existence, the process thereby finishing. But the (coming into) existence of the sweater is nevertheless criterial in making the process the kind of process it is. Hence, we find in such continuations as those in 433. 'and' occurring when this criterion is satisfied and 'but' when it is not:

433. Katinka was knitting a sweater { and { she finished it / *she gave it up } / but { *she finished it / she gave it up } }

The same observations and conclusions are valid for other kinds of journeys, including the most concrete ones--cf., for example, 434. below.

434. The ball was rolling to the corner { and { it got there / *it stopped short } / but { *it got there / it stopped short } }

7.7 Duration, frequency and iteration

There are various topics in the description of temporal expressions which we have not yet dealt with and which we can only touch briefly upon here. One is the question of sentences describing the repetition of bounded situations, that is, sentences containing expressions of frequency or iteration. Another, which we shall deal with first, is the existence of a particular element of vagueness in the use of 'for' durational adverbials and of 'in' expending adverbials.

Considering first the case of durational adverbials, we notice that a sentence such as 435. below is vague as to whether the

435. The students demonstrated for five hours

period of five hours involved is a continuous or a non-continuous stretch of time. This vagueness between a 'consecutive' and a 'total' reading can be eliminated by the addition of various modifiers, as illustrated in 436. and 437. (However, the addition

436. a. The students demonstrated for { five consecutive hours / five hours straight/solid / five hours without stopping }

b. The students demonstrated continuously for five hours

437. The students demonstrated for { a total of five hours / five hours in all }

of 'a total of' in 437. does not, perhaps, rule out a consecutive reading--cf. 438.) Leech is mistaken, therefore, when he states

438. The disc jockey won the marathon by broadcasting for a total of one hundred consecutive hours

that "expressions such as <u>three weeks</u> referring to a period of time must be analysed semantically as 'a period (consisting) of three weeks', otherwise there is nothing to indicate that the three weeks are consecutive" (Leech, 1969: 130). First of all, the use of a (relative) semantic system ⇄CON ("consist of") does not capture the distinction Leech is after since a period of time can be construed as consisting of disjoint sub-periods of time as well as of consecutive sub-periods. A sentence such as 439. below, for example, does not necessarily imply that the

439. John has spent a considerable period of time abroad

period of time spent abroad was a continuous one. More particularly, we have just seen that the period of time indicated by an expression such as 'three weeks' need not, contrary to Leech's claim, have only a consecutive reading. The example given by Leech--440. below--tends to favour most naturally the consecutive

440. I've lived here (for) ten years

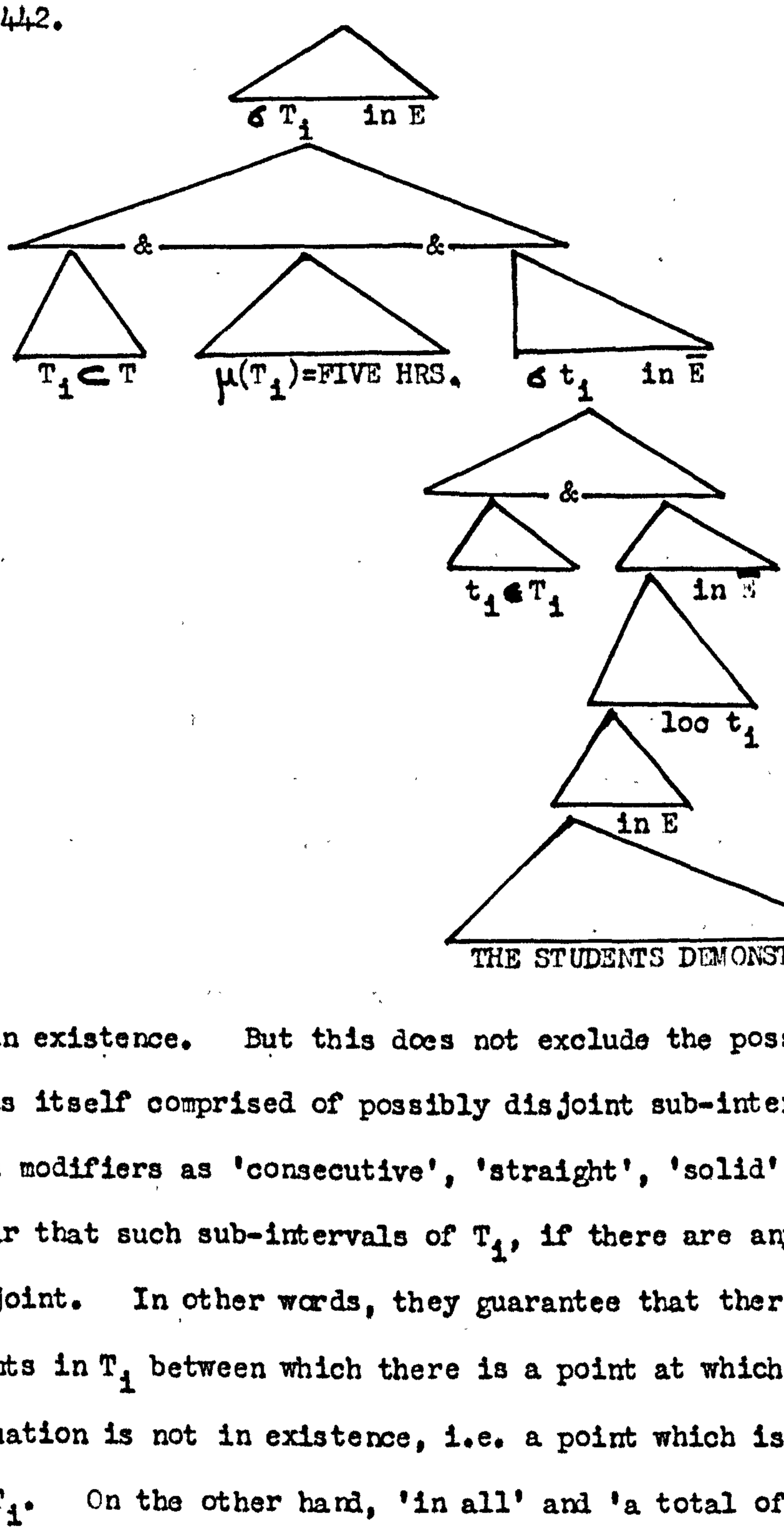
reading because of the presence of inclusive tense and, more particularly, the presence of the deictic expressions 'I' and 'here' (cf. fn. 1, p.557), but a total understanding of the sentence is far from ruled out, as demonstrated in 441.

441. I've lived here for (a total of) ten years--three years before the war and these past seven

The potential for this type of vagueness already exists in the kind of semantic representation we would assign to sentences such as 435. Disregarding the element of boundedness in 435.

(cf. § 7.4.4), the relevant part of it can be represented as in 442. below. All that is required of T_i is that it be a subset of points in T such that at each point the situation described

442.



is in existence. But this does not exclude the possibility that T_i is itself comprised of possibly disjoint sub-intervals. What such modifiers as 'consecutive', 'straight', 'solid' do is make it clear that such sub-intervals of T_i, if there are any, are not disjoint. In other words, they guarantee that there are not two points in T_i between which there is a point at which the described situation is not in existence, i.e. a point which is not a member of T_i. On the other hand, 'in all' and 'a total of' emphasize

the possibility that the sub-intervals of T_i are disjoint: 'in all' suggests that a reference interval containing several sub-intervals is involved (cf. below) while 'a total of' implies that μ involves a summing of measures of sub-intervals.

The situation is somewhat similar though not identical in the case of 'in' expending adverbials. Here the vagueness resides in whether in a sentence such as 443. below, for example, Solly is understood as having been busy the whole three hours in

443. Solly wrote the essay in three hours

writing the essay or not. All that the expending adverbial indicates is that it was three hours between the time at which Solly commenced the writing of the essay and the time at which he finished writing it. Sentences 444. and 445. illustrate the

444. Solly spent a solid three hours writing the essay

445. Solly wrote the essay in three hours even though he had to stop several times to attend to his sick mother

two possibilities. Again, we have already provided for this dimension of vagueness in our characterization of a journey in 225. (cf. p. 445). The central conjunct on the right of the structure within the scope of the iota operator binding X_i represents the condition that X_i is in existence only when the directional process of A moving toward C is also in existence. That is, it is not necessarily in existence at all times between the time of its (initial) inception and that of its finishing. Sentence 445., for example, explicitly states that there were times within the

three hours when X_i (here, John writing the essay) was not in existence. Sentence 444., on the other hand, adds to 443. the information that there was no time within the three-hour stretch when X_i was not in existence.

The phenomenon we have been discussing here is not to be confused with the problem encountered when the situation being described by a sentence is one which is often interrupted by physical needs, such as sleeping and eating, or culturally determined practices, such as working an eight-hour day, taking the weekend off, etc., which the users of a language in a particular socio-cultural community are aware of and take into account when, for example, someone says that John has been working for ten days or that Bill read <u>War and Peace</u> in a week. How such facts are to be dealt with in a semantic description, if they are within the realm of semantics at all, is not clear. It should be pointed out, however, that this parameter of vagueness, if it is such, is independent of that which we have been discussing. For example, sentence 446. would not be an

446. Bill spent $\left\{\begin{matrix}\text{an entire week}\\ \text{five consecutive days}\end{matrix}\right\}$ reading <u>War and Peace</u>

inappropriate utterance even if, and as is most likely, Bill took time off to eat and sleep. This problem is, in fact, also relevant to the analysis of sentences describing iterated situations, as we shall see.

Let us, then, turn our attention to the topic of sentences describing the pluralization or repetition of situations within and throughout a given interval of time. We shall restrict

ourselves to sorting out some of the data and to making only some informal proposals concerning their description. We can begin by considering the following two sentences:

447. Mary watered the lawn three times today

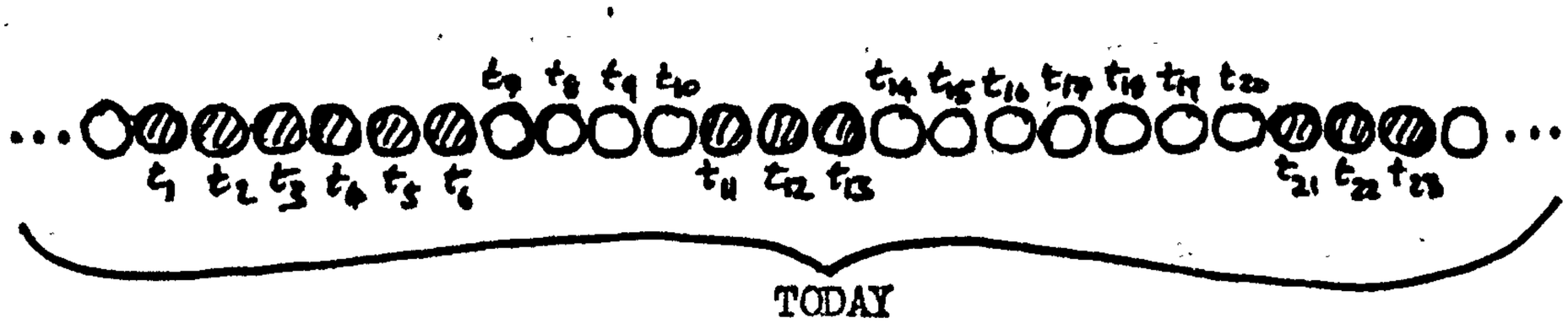
448. Mary watered the lawn (for) (a total of) five hours today

Both 447. and 448. involve a reference interval (that identified by 'today'--cf. §8.2.1 for some discussion) within which are sub-intervals which are temporal projections of the process of Mary watering the lawn. However, whereas in 448. these sub-intervals are measured, in 447. they are counted. And these two ways of dealing with a set of subsets of points are not mutually exclusive: 447. and 448. could both be used to describe the same (sequence of) situation(s), as is demonstrated by the possibility of combining them into a sentence such as 449. Graphically, we

449. Mary watered the lawn three times today for a total of five hours

could have the following temporal configuration, where blacked-in

Figure XVI



$$1.\ \mu\{\{t_1, t_2, t_3, t_4, t_5, t_6\}, \{t_{11}, t_{12}, t_{13}\}, \{t_{21}, t_{22}, t_{23}\}\}$$

= 5 HOURS

ii. $f^m \{\{t_1,t_2,t_3,t_4,t_5,t_6\},\{t_{11},t_{12},t_{13}\},\{t_{21},t_{22},t_{23}\}\}$
= 3 (TIMES)

iii. $\{t_1,t_2,\ldots,t_{22},t_{23}\} \subset$ TODAY

(We have let f^m stand for the cardinality, i.e. the number of members, of a set.)

circles represent those times at which the process of Mary watering the lawn is in existence. (We have let each circle stand for a $\frac{1}{2}$-hour unit.) Thus, in 449. the existence of a set of three temporal intervals (ii.) within the temporal interval TODAY (iii.) and having a total measure of five hours (i.) is asserted such that each temporal interval is a temporal projection of the process of Mary watering the lawn.

Consider now the following two sentences which differ from 447. and 448. only in that what appears to be an expending adverbial identifies the reference interval rather than a locational adverbial:

450. Mary watered the lawn three times in (the space of) ten and a half hours

451. Mary watered the lawn (for) (a total of) five hours in (the space of) ten and a half hours

There are (at least) two ways in which these sentences can be interpreted. Firstly, 'Mary water the lawn three times' and 'Mary water the lawn for a total of five hours' can be analyzed as describing journeys or, at least, as describing bounded processes. In this case, the expending adverbial has its normal function. That is, 'in ten and a half hours' indicates, in the

case of 450., the measure of time between the inception of the first instance of watering the lawn and the termination of the third instance of watering the lawn. In 451. it indicates the measure of time between the beginning and end points of an interval such that the watering of the lawn begins at the beginning point and ends at the end point of the interval and such that the total measure of the sub-intervals of times in between throughout which the watering of the lawn is in existence is five hours. Under either of these interpretations, the interval whose measure is ten and a half hours is non-specific: it is not precisely located on the temporal axis. Accordingly, rather than property iii. in Figure XVI above, we have iii'. below:

iii'. $\mu\{t_1, t_2, \ldots, t_{22}, t_{23}\} = 10\frac{1}{2}$ HOURS

Let us now consider the alternative reading of 450. and 451. In this case, the interval whose measure is ten and a half hours is a specific interval, having implicitly or explicitly a precise location on the temporal axis. For example, the 'in' adverbial in both sentences could be elaborated as 'in ten and a half hours beginning this morning at nine' or such information could be retrievable from the context. Accordingly, the interval is functioning as a proper reference interval within which the counted or measured repetitions of the described situation are located and not as the specification of the time expended by these processes. Supposing 450. and 451. are elaborated as suggested above, property iii. in Figure XVI is replaceable by iii". below, the second conjunct of which serves to locate the interval on the time axis:

iii". $\mu\{t_1, t_2, \ldots, t_{22}, t_{23}\}$ = 10½ HOURS & t_1 = 9:00
THIS MORNING

It is under this latter interpretation that the adverbial 'in (the space of) ten and a half hours' in 450. and 451. can be preposed to sentence initial position.

Rather than having a 'constant' reference interval, such as that identified by 'today' (disregarding the deictic variability involved here) or by 'on Monday', the reference interval may be a bound variable. This possibility is illustrated in 452. and 453.

452. Mary watered the lawn three times {some days / every day}

453. Mary watered the lawn (for) (a total of) five hours {some days / every day}

~~below~~ 'Every', for example, realizes a universal quantificational structure whose domain is the set of day sub-intervals of the time axis. It is usually the case, however, that such sentences as these contain an additional temporal adverbial, essentially locative in function (e.g. 'last year', 'during this past summer'), which can be interpreted in either of two ways according to its position in the sentence. Compare, for example, 454. to 456. below.

454. Every day last year Mary watered the lawn three times

455. Mary watered the lawn three times every day last year

456. Last year Mary watered the lawn three times every day

In 454. 'last year' is interpreted as specifying more precisely the domain of the universal quantifier binding the interval variable identified by 'day'. In 456., on the other hand, 'last

year' specifies the interval of time during which it was true that Mary's watering of the lawn took place three times every day. Sentence 455. can sustain either interpretation. The two readings will, in general, have the same truth conditions; but they represent different structurings of the informational content. Sentence 454. states that for each day of last year it was true that Mary watered the lawn three times on that day. Sentence 456. states that last year Mary carried out a regular (viz. daily) activity of watering the lawn three times.

It is this latter informational structure which appears to be relevant to the idea of 'habitual activity'. Consider in this respect the following sentences, which differ from those above only in the fact that the locational adverbial is one identifying an interval including t_o, hence the appearance of non-past tense:

457. ?Every day this year Mary waters the lawn three times

458. Mary waters the lawn three times every day this year

459. This year Mary waters the lawn three times every day

(457. can be given a 'future-as-scheduled' interpretation--cf. § 8.2.1--but we shall disregard this possibility here.) The nuance of habituality becomes stronger when such an adverbial as 'this year' is not present: the regular activity being described then appears to have unrestricted generality (at least within the existential limits of the person(s) involved):

460. Mary waters the lawn three times every day

However, such a sentence as 460. can plausibly be accounted for in the same way as 458. by invoking some such notion as an 'extended

present', i.e. an interval of indefinite, contextually dependent measure around t_o. Restriction of the truth of Mary's daily activity of watering the lawn three times to the times within such an interval would then be implicit in 460.[1]

Returning now to the 'every' versions of 452. and 453., we find that the step from them to sentences such as 461. and 462. below is the same as that from a sentence such as 463. to one such as 464.--i.e. from a universally quantified structure to a

461. Mary watered the lawn three times a day (last year)

462. Mary watered the lawn (for) (a total of) five hours a day (last year)

463. Every Canadian is a British subject

464. A Canadian is a British subject

generic one (or, since both 'Mary' and 'the lawn' are referring expressions, a semi-generic one--cf. Anderson, 1973e). If we analyze generic statements in terms of an implicational structure (cf. fn. 1, p.527), then the difference between 463. and 464. might be brought out by the following paraphrases: 463. states that there is no member of the class of Canadians such that it is not the case that he is a British subject; 464. states that if

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[1] There is, of course, the possibility of the progressive form occurring in such sentences as 457. to 460., which makes the first three, at least, somewhat more natural. However, we have not been able to investigate the relationship between the semantics of the progressive and non-progressive form of such sentences nor between this use of the progressive form and its occurrence in sentences describing single (i.e. unrepeated) situations.

someone is a Canadian, then he is a British subject. In a similar fashion, 455. (under one reading) states that last year it was the case that there was no day interval such that it was not the case that it contained three temporal projections of the process of Mary watering the lawn whereas 461. states that last year it was the case that if a temporal entity was a day interval then it contained three temporal projections of the process of Mary watering the lawn. In the cases at hand, the logical consequences of the difference between these two formulations is minimal; however, this is not always so (cf. Dahl, 1973c, for some discussion). As far as expressions of frequency are concerned, we may note that the generic variant is possible only when the reference interval is a (single) unit of time not precisely located on the temporal axis. If either of these conditions are not satisfied, then only the universal quantifier structure is possible:

465. Mary watered the lawn three times $\begin{cases} \text{every two days} \\ \aleph_a \text{ two days} \end{cases}$

466. Mary watered the lawn three times $\begin{cases} \text{every Monday} \\ \aleph_a \text{ Monday}^1 \end{cases}$

Let us turn now from the various kinds of expressions of frequency we have been discussing to sentences involving iteration. Iteration has in common with duration the fact that the same adverbials are relevant--i.e. adverbials indicating a (universally quantified) interval of time, whether specified by a measure

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[1] But compare the sentences below.

1.a. ?Mary watered the lawn three times on Mondays
  b. (On) Mondays, Mary watered the lawn three times
2.a. ?Mary watered the lawn three times on a Monday last year
  b. Last year Mary watered the lawn three times on a Monday

(e.g. 'for ten hours') or by beginning and end points (e.g. 'from noon to midnight') or by a named interval (e.g. '(all) during the afternoon'). On the other hand, iterative structures have in common with frequency structures the fact that the situation being described is repeated and hence is a bounded (i.e. countable) one. However, whereas frequency involves a specification of the magnitude of the set of instances of the situation within a reference interval, iteration involves simply an unspecified number of such repetitions in (what theoretically approximates to) an end to end fashion; and it is this latter property of 'filling up' the reference interval which makes the durational adverbials appropriate to it. That is, the end to end repetition of a bounded situation conceptually approximates to the continuous homogeneous repetition of a point projection of a non-bounded situation (this being the essence of the duration of a state) in that, in both cases, each point in the (reference) interval belongs to the/a temporal projection of the situation being described. This is, of course, not a new observation: Fijn van Draat (1912: 156), for example, observes that "continuance...may be graphically expressed by a straight line. Now, just as a succession of points will make upon the mind the impression of a line, so a succession of detached events will make upon the mind the impression of continuance".

However, in actual usage, the bounded situation which is being described by a sentence need not be repeated in a strictly end to end fashion (such that no moment elapses between the end of

one repetition and the beginning of the next) in order for it to be treated as iterated and for durational adverbials to be appropriate. This is where pragmatic facts again appear to enter in. Consider, for example, sentences 467. to 470. Whereas in the

467. Raindrops pelted the tin roof all morning

468. The postman knocked on the door for a few minutes and then gave up

469. Mary wrote out invoices all day

470. Fred telephoned Sarah all week

first of these sentences the repetitions of a raindrop pelting the roof are most likely nearly end to end (and probably overlapping), in the other three examples the repetitions are likely to be interspersed with periods when the described situation is not in existence. In the case of 468., the action described involves the bringing of one object into contact with another; and a journey 'undoing' this action, i.e. breaking this contact, is prerequisite to its repetition (assuming the same objects are involved). This may well be a semantic fact, inherent to the meaning of such verbs as 'knock', 'tap', 'kick', etc., but pragmatic factors certainly enter into such cases as the third and fourth examples. It is not likely that Mary didn't stop for a breather or break between any of the instances of her writing out an invoice nor that Fred re-dialled Sarah's number as soon as he had finished one telephone conversation with her. This problem would appear to be similar in kind to that discussed above in relation to sentence 446.

Returning to the relationship between duration and iteration, we find that what we have observed is a complementarity in the distribution of the semantic functions of duration and iteration with respect to those adverbials which we have been calling durational adverbials. The durational interpretation requires that the described situation be non-bounded, the iterative interpretation that it be bounded. Accordingly, the first sentence below sustains only a durational interpretation, the second only an iterative one:

471. Sally held Brian's hand for ten minutes

472. Sally slapped Brian on the face for ten minutes

However, this statement of distribution of semantic function requires one qualification; for there are contexts in which there is what appears to be free variation between the two interpretations. First of all, we must recognize (at least) one exception to the above formulation: if the bounded situation is a simple border-crossing, then the possibility arises for a durational adverbial to be interpreted as measuring the duration of the final state rather than as measuring the iteration of the border-crossing--473. to 475. This is so because in order for the border-crossing

473. The lake froze over for two months

474. They opened the library for two months

475. John left the party for a few minutes

to be repeated, another border-crossing in the reverse direction must intercede--i.e. the ice must melt, the library be closed and John return to the party. Furthermore, for an iterative rather

than simply a 'number of times' interpretation the reverse border-crossing would have to be followed more or less immediately by another instance of the described border-crossing and so on; and this is pragmatically implausible in the sentences above. A 'number of times' interpretation is, however, not ruled out--cf. 476., for example. Consider now the sentences in 477. and 478.

476. The lake froze over every night for two months

477. Sally kissed Brian for ten minutes

478. John opened the door for three hours

Under a non-iterative reading, 477. and 478. imply 479. and 480.,

479. Sally's lips were in contact with Brian for ten minutes

480. The door was open for three hours

respectively. However, they may also be interpreted iteratively--i.e. Sally gave Brian a series of kisses such that ten minutes elapsed between the first and the last, and John opened the door continuously for three hours. Such a reading for 478., although less natural than for 477., becomes more plausible considered in a context such as 481. below. And, of course, possibilities

481. Guests arrived one after the other all evening. John opened the door for three hours and then Bill relieved him

then come to mind for constructing contexts in which 473. to 475. might also be interpreted iteratively.

Looking at the matter from a somewhat different viewpoint, we

have in such cases as 473. to 475., 477., and 478. a potential ambiguity in the 'scope' of the durational adverbial. The non-iterative interpretation of sentence 478., for example, could be roughly glossed as "John caused it to come to be and to be for three hours the case that the door is open" while the iterative interpretation would be (much abbreviated) "For three hours John caused it (over and over again) to come to be the case that the door is open". However, what we have been trying to emphasize here is the role which contextual and pragmatic considerations play in making one or other of the interpretations dominant.

7.8 Proposition types

Before proceeding to the analysis of tense and of two different sets of temporal adverbials in the next chapter, let us summarize, in rather schematic and speculative terms, the nature of the classification of proposition types which has evolved throughout the preceding sections. At the basis of such a classification is a dynamic principle which might be likened to that of molecular composition. That is, complex proposition types are constructed out of sequences of simpler ones which latter may also be molecular in structure and further decomposable into ultimately atomic propositions. Whether a particular (non-atomic) situation which is to be described linguistically is treated propositionally as a sequence of atomic propositions, as a (shorter) sequence of relatively simple molecular propositions, or as a single, relatively complex molecular proposition will depend both on how the extralinguistic situation is perceived or

conceptualized and on the linguistic categories available to the speaker (and these two factors need not, of course, be necessarily independent of each other). Let us sketch out what we mean by this.

We begin with the simplest situation of a concrete or abstract locational relation or, in von Wright's terms (cf. § 6.2.6), a state. As an example of the corresponding class of locative propositions, let us take A loc B (cf. 'A (be) at B'). (Such propositions will have a 'sub-atomic' structure, parts of which may even be de-propositional; but this does not affect the present discussion.) Now, if we have two temporally successive locational relations, both involving A as the object being located, then we have the choice, linguistically, of either encoding these as two atomic propositions (cf. von Wright's "and then" binary operator T) or as encoding them as a single but complex proposition, i.e. in terms of what we have been calling a border-crossing (e.g. X into E). Now consider an indefinite number of successive locational relations all involving A and such that each successive locational relation finds A at a place successively closer to C. There are now three linguistic options available. Again, we could encode each locational relation separately by means of a series of "and then" conjunctions; but this would be linguistically awkward in most cases. Secondly, we could treat every temporally contiguous pair of locational relations as constituting a border-crossing (e.g. as described by 'A become/get closer to C') and then express the entire sequence as an iterated border-crossing (cf. 'A get closer and closer to C').

Finally, we can treat such an analytic iteration of a border-crossing in a synthetic fashion, compounding it into a single, but internally complex, proposition $\underline{L(A) \rightarrow C}$ (cf. 'A move towards C', 'A approach C').

Consider now a similar succession of atomic locational relations the first of which involves A being at B, the last of which involves A being at C, all others being successively ones with A located successively closer to C. Again, we could encode this by a sequence of atomic propositions, beginning with $\underline{A \text{ loc } B}$ and ending with $\underline{A \text{ loc } C}$. Alternatively, the first two locational relations and the last two locational relations could be collapsed into two border-crossings and the intermediate ones either into an iteration of the border-crossing of A getting closer to C or fully into a directed process of A moving towards C. That is, we would have something like 'A leave B and then A move closer and closer to C (or A move towards C) and finally A arrive at C'. Yet another possibility now arises, namely to treat all of this as the single, complex proposition expressed by 'A moved from B to C'. In this case the situation is analyzed as an extended journey, a process which is inherently bounded by the two border-crossings which constitute its inception and termination. And, looking from the reverse point of view, we found that the complex proposition constituting an extended journey reduces to that of a border-crossing when its source and goal are spatially contiguous locations (cf. 'cross the ocean'/'cross the border').

Extended journeys, as well as border-crossings, can be iterated. Accordingly, in addition to the process of directed movement, we

have other processes which can be viewed as composed of such iterated journeys. For example, walking involves the iteration of taking a step, chewing the iteration of biting something, talking the iteration of uttering a word, etc. Correspondingly, the propositions representing these situations so viewed will somehow have to reflect this internal structuring. The upshot of this is that we have the following kind of development: (inherently non-bounded) atomic propositions participate in the composition of (inherently bounded) complex propositions--e.g. border-crossings--which latter participate further in the composition of (inherently non-bounded) complex propositions--e.g. directed movements. Inherently non-bounded propositions may, of course, be externally bounded by the assignment to them of temporal limits (cf. 'talk for two hours every day') or by 'superimposing' them upon propositions constituting skeletal journeys (cf. 'walk to the store', 'talk oneself hoarse'). But the important point is that sentences describing such processes as walking, chewing, talking, etc. are similar in some of their temporal properties to sentences describing (atomic) locational relations, in particular, in their non-boundedness and their ability to be continuously projected onto the time axis. This behaviour can be seen to be derivative of the fact that propositions representing such non-bounded processes comprise an indefinite number of theoretically end-to-end repetitions of a bounded proposition. However, the fact that such propositions, like the bounded propositions of which they are composed, involve a heterogeneous temporal-existential structure--i.e. that the situations they represent have phases--is reflected in the fact

that <u>in E</u>, when predicated of them, is realized as the progressive form (cf. § 7.4.4).

However, we are still left with the problematic cases where the progressive form appears in sentences describing seemingly static situations, i.e. ones which do not in any obvious way involve inherent phases. These are the troublesome set of borderline sentences involving such verbs as 'sleep', 'live', 'stand', 'wear', etc. What we would like to suggest is that there also exists a class of situations, and a corresponding class of propositions, which we might call (inherently) bounded locational relations. For example, the difference between the minimal pair 'be asleep' and 'be sleeping' would be that between a simple (abstract) locational proposition ('asleep' ≺ 'at/on sleep') and a complex, bounded proposition based on such a locational relation. A sleep (e.g. as identified by sentence 482. below) is that which begins with John falling asleep, ends with him waking up and exists

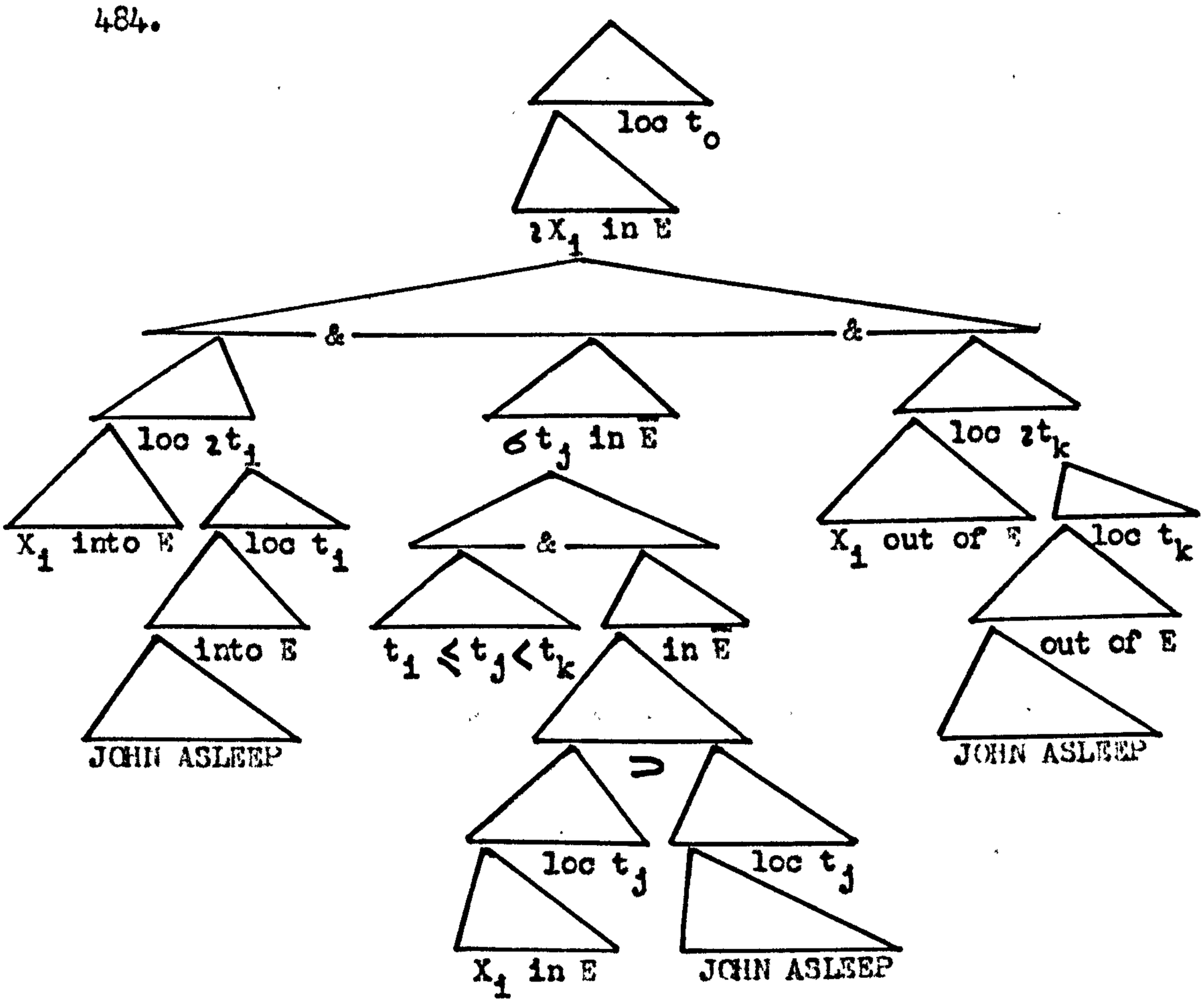
482. John had a good night's sleep

all the while he is asleep. Sentence 483. therefore asserts that

483. John is sleeping

such a bounded situation is in existence--cf. the structure given in 484. This semantic configuration differs from that of a journey

484.



(cf. 225.) in that, most crucially, that which constitutes the end of the bounded situation is not an inceptive event but rather a cessative one (and a trivial one at that); and this is due, in part, to the fact that there is no directional component involved. Accordingly, unless the subject is somehow programmed to be asleep for a certain length of time or from a certain point in time to another, then only 'cease' or 'stop' and not 'finish' is appropriate. That is, sleeping has only an arbitrary, not an intrinsic end. Recapitulating, 'John be asleep' describes a non-bounded locational relation whereas 'John sleep' describes a conceptually bounded one. And this conceptual difference can be related to the pragmatic fact that sleeping is a recurrent, temporally bounded phenomenon in our

day-to-day life.

Such an analysis could perhaps be extended to the pair 'be alive' and 'be living' (though the two are not entirely identical in their range of collocations--cf. fn. 1, p.430). Again, life is for most of us a temporally bounded entity, beginning with birth (i.e. entry into life) and ending with death (i.e. exit out of life) and existing all the time we are alive (i.e. in life). Carrying such a proposal still further, the difference between the static and dynamic uses of the posture verbs 'sit', 'stand', 'lie', 'lean' could receive a similar explanation although here there is no differentiation into adjective versus verb. In their use in sentences describing human and other animal behaviour, these verbs participate in expressing temporary, i.e. temporally bounded, situations, ones which come into existence and are likely to go out of existence shortly. And this correlates with quite obvious and normal human and animal behaviour. Thus, underlying 485.

485. John is standing at the door

would be a structure similar to that of 484. whereas 486. would

486. The Statue of Liberty stands at the harbour entrance to New York

have a semantic representation involving a simple, non-temporally structured locational/orientational relation. Speculating still further, we might propose that, on analogy with such pairs as these--'asleep'/'sleeping', 'alive'/'living', 'stand'/'standing'--the much less frequent use of the progressive form with stative constructions such as 'believe', 'understand', 'have a headache' is

understood in the same way: temporal limits are introduced into the semantic structure.

Note finally that although the verbs 'wear' and 'attend' at first glance seem to denote locational relations, their natural acceptance of the progressive form suggests that they differ from 'have on' and 'be at', respectively, in involving some temporal-existential structure. This, in fact, would be provided from the (causative and) inchoative element(s) which appear necessary for their semantic description: 'wear'='put on and have on', 'attend'='go to and be at'.

VIII
APPLICATIONS TO THE ANALYSIS OF TENSE AND TEMPORAL ADVERBIALS

8.1 General remarks

It will be the purpose of this chapter to investigate, within the framework developed above, the semantics of a select set of temporal adverbials which reveal, in a particularly instructive manner, the interplay of proposition type with the temporal and/or existential structures which we have postulated for aspect, aktionsarten, negation and quantification. Our previous discussion has already led us to the examination of such temporal expressions as the point-time and interval locational adverbials 'at...', 'in/on...', the durational adverbials 'for...', 'from...to...', the expending adverbial 'in...', and frequency adverbials; and it was found that the semantic structure of these expressions can be displayed naturally and perspicuously by means of our descriptive apparatus. Here we wish to treat in considerable detail two further sets of adverbials--that comprised by 'already', 'still', 'yet,' and 'any~~more~~longer', ~~and 'by'~~ and that comprised by 'until...' and 'since...'. As we shall see, an understanding of the semantic correlate of inclusive tense is involved in a full analysis of the former set and also relevant to the elucidation of the semantic properties of the latter set. Accordingly, we shall begin with a discussion of the representation of tense within our framework, particularly that of inclusive tense. This will also involve us in a discussion of the simple and progressive forms of the verb.

8.2 Tense and aspect

8.2.1 Past versus non-past

We do not pretend in this and the following sections to give anything close to a thorough analysis of the various tense forms and their uses in English. We are mainly concerned with establishing what infor-

mation must be included in the semantic representation of sentences with inclusive tense in order to reflect accurately the way(s) in which they are understood and in order to account for certain co-occurrence restrictions with temporal adverbials and certain semantic relations, in particular, that of 'consequence' (cf. Lyons, 1963: §6.43; also our discussion in §6.2.3). Furthermore, we are interested only marginally in the rules which would relate such semantic representations to the surface sentences (for some discussion cf. Huddleston, 1969; McCawley, 1971b; Anderson, 1972, 1973c; Anderson & Jessen, forthcoming).

However, the semantics of the inclusive tense cannot be fully appreciated in vacuo, i.e. without some prior understanding of the semantic correlates of tense in general and of the basic opposition of past versus non-past tense in particular. Hence it is to this latter that we must first direct our attention. Unfortunately, the uses of the simple past and non-past forms are not themselves without semantic complexities; but it is more than likely that many of these are resolvable into a complex interaction of contextual factors, among the more important of which are the proposition type, aspect, and the co-occurring temporal adverbials or lack of them (cf. §5.2.2). (As we shall find, such interaction plays an equally important role in the semantics of inclusive-tense sentences.) In what follows we will restrict our attention, for the most part, to the more straightforward uses of the past and non-past tenses--i.e. to that of locating the described situation wholly before the time of utterance in the case of the past tense and at or overlapping with the time of utterance in the case of the non-past tense (which is, generally speaking, its unmarked interpretation in the absence of temporal specification to the contrary). In particular, we shall not be considering uses of the non-past tense which require or

presuppose a special context (e.g. sports commentary, cooking demonstrations, narration in the 'historical present', etc.) nor of the past tense in contexts such as reported speech and those involving unreality or tentativeness (cf. Huddleston, 1969).[1]

Perhaps the simplest case to begin with is that of sentences describing locational relations, both concrete and abstract. These, as we have seen, project themselves in a homogeneous and continuous fashion onto the temporal axis, making it possible for them to be assigned both point-time locations and temporal extensions (i.e. the sum of their point-time locations). Let us first consider sentences with point-time adverbials which describe situations located in the past and, for contrast, in the future. In sentence 1, for example,

1. Jim was in Paris { at that moment / at noon today }

the locational relation of Jim being in Paris is located at a specific moment of time which, as reflected by the past tense, is ordered before

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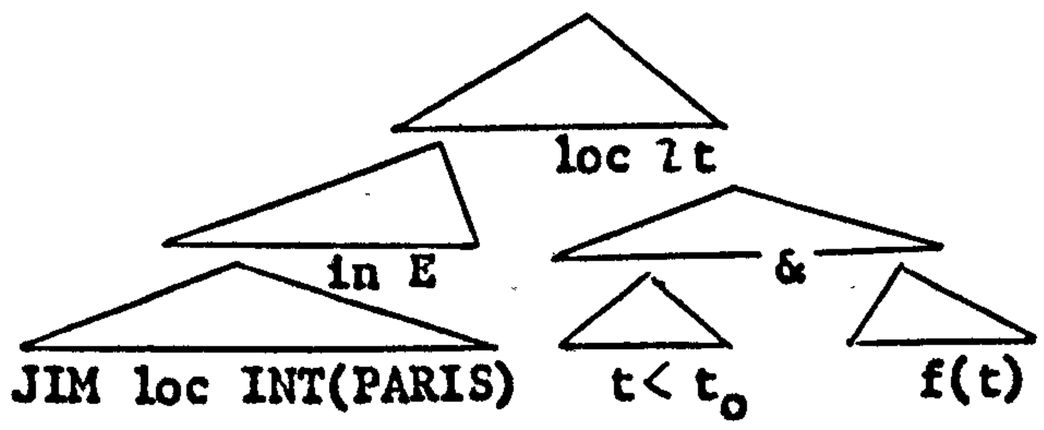
[1] One of the outstanding problems in any treatment of tense is how to represent the meanings of sentences describing general truths, habitual activity, and iterated action, the latter of which we have touched upon only briefly and inconclusively in the preceding chapter. There does not appear to have been any convincing and/or comprehensive analysis of these, and we will of necessity have to be rather superficial in our treatment of their interaction with temporal expressions. What appears to be the case, however, is that semantically these are ultimately locational or, at least, non-bounded structures. Generic sentences describe situations defined or constituted by some general law; and these, if appropriately analyzed as conditional constructions (cf. Dahl, 1973c), can be interpreted as locative in nature (e.g. in terms of set-theoretic inclusion or in terms of possible worlds). In the case of habitual sentences, a law-like or rule-like property may also be involved (cf. Dahl, 1973c) or the composition of a state--i.e. an abstract location--by a set of regularly repeated states or activities (cf. 'in the habit of'). This latter possibility is explored by Leech (cf. fn. 1 p. 322). Iteratives behave as non-bounded processes due to their being comprised by an indefinite number of regularly or continuously repeated bounded processes (cf. §7.8).

the time of utterance, t_o. In contrast, sentence 2. associates the

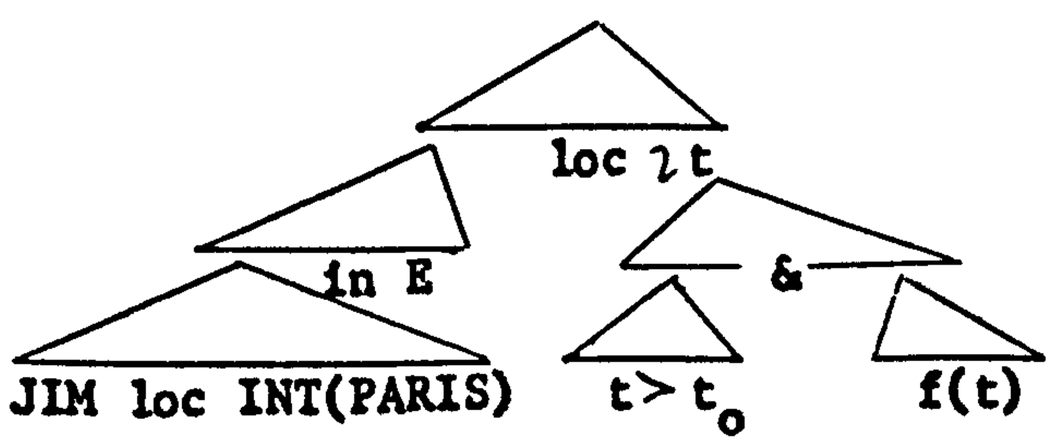
2. Jim will be in Paris $\begin{cases} \text{at that moment} \\ \text{at noon today} \end{cases}$

same situation with a point-time location which, through the illocutionary force or modal implications of 'will', is understood to follow t_o, despite the fact that the overt temporal adverbials are identical to those in 1. In the case of the anaphoric expression 'at that moment', we can assume that the semantic configuration underlying it (or the expression with which it is co-referential) contains the information that the time being referred to is before t_o (in sentence 1.) or after t_o (in sentence 2.). Following Anderson (1972), the former specification is that which is eventually spelled out as the past-tense marking on the verb (cf. §5.2.2; also McCawley, 1971b; Dahl, 1971). The latter specification, on the other hand, is more appropriately viewed as satisfying a well-formedness constraint associated with the propositional structure within the scope of a modal such as 'will'. We can represent the temporal information involved in these variants of 1. and 2. as follows:

3.



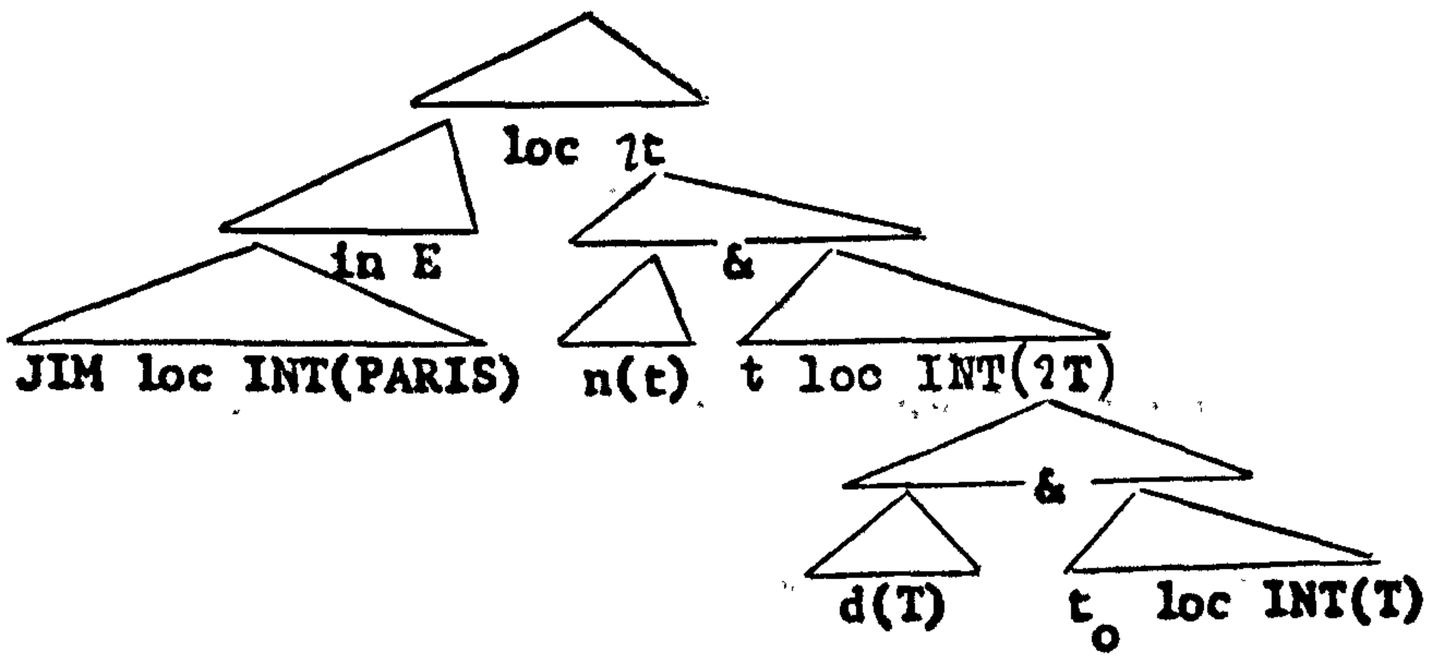
4.



(We have let f(t) stand for whatever information in addition to its ordering relationship to t_o is relevant to the unique identification of t.)

If we now consider the variant of 1. with 'at noon today', a slight problem presents itself. Although the adverbial is, like 'at that moment', deictically ambivalent out of context, it does nevertheless identify a unique point on the time axis and, in this sense, the ordering relation between this point and t_o cannot be considered to be within the scope of its iota operator, as it is in 3. That is, disregarding the tense for the moment, both 1. and 2. are in this case associated with the semantic representation in 5. below. (We have let

5.

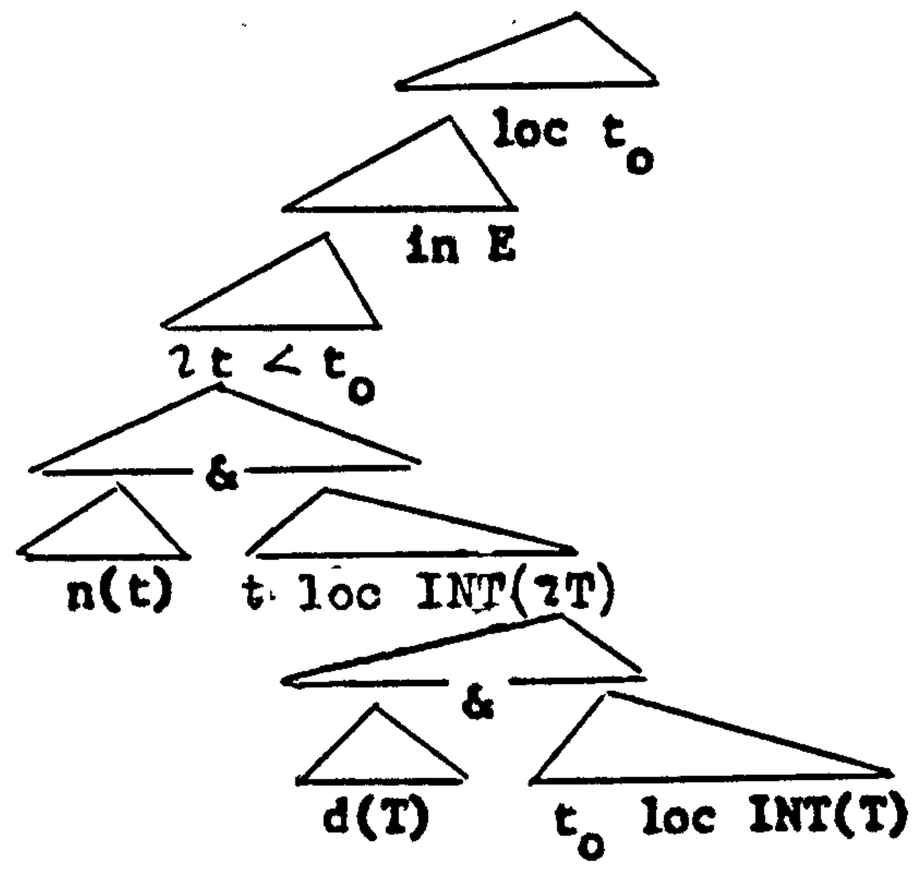


n(t) abbreviate the semantic information that $\underline{t}$ coincides with a clock-point labelled 'noon' and $\underline{d(T)}$ the semantic information that $\underline{T}$ is an interval whose beginning and end points coincide with two consecutive clock-points labelled 'midnight', i.e. that it is a calendar day (cf. Bull, 1960; Leech, 1969; and §7.4.1). The configuration within the scope of the higher iota operator can be read as "the time such that it is (a) noon and is included in the day interval which includes the time of utterance".

At least two possibilities present themselves for the representation of the semantic structure which is realized as the past tense form in the variant of 1. under consideration; and these correspond to two possible arrangements of given and new information. The first of these involves simply the conjunction of 5. with a structure such as that in

6. below, which represents the fact that 'noon today' identifies a

6.

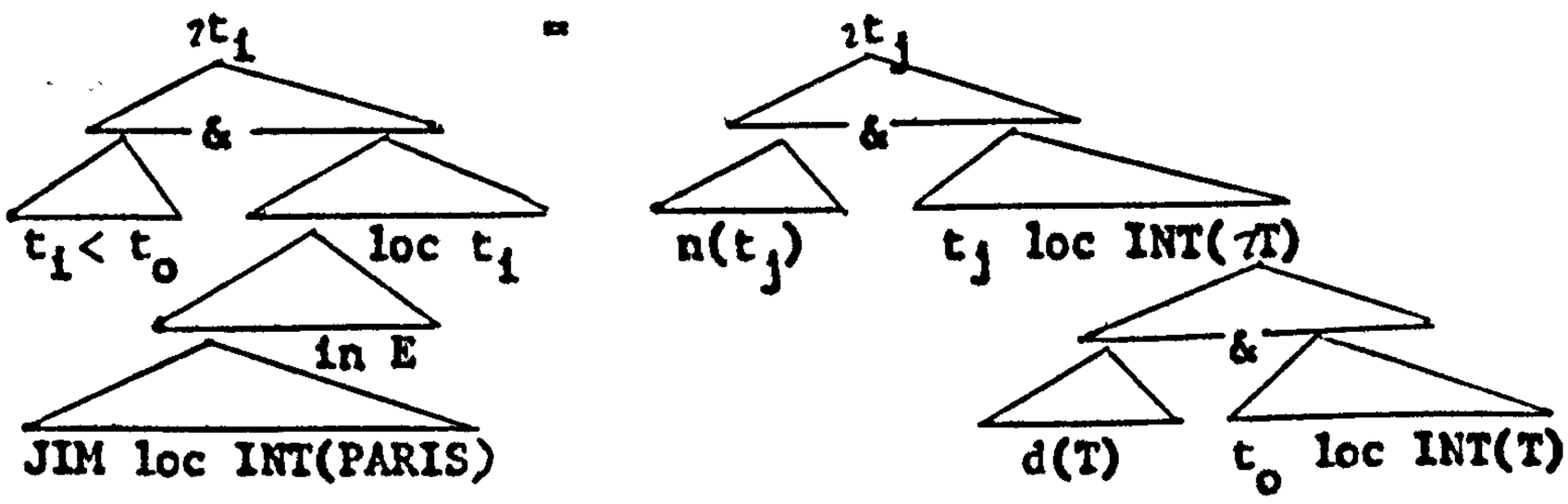


time which, at t_o, happens to be before t_o. Such a conjunction presents all the temporal information in 1. as new. This would perhaps be appropriate in such a dialogue as that in 7. below. However, a

7. Does anyone know where Jim is? He was in Paris at noon today, but I don't know if he is still there

second and perhaps more natural alternative for the information structure of 1. is that in which it is presupposed (i.e. the information is assumed to be already available) that Jim is in Paris (at some unspecified point of time in the past). In such a context, the new temporal information expressed by 1. is simply that the unspecified time is noon (today). What is involved is therefore an equational structure, such as 8. This

8.

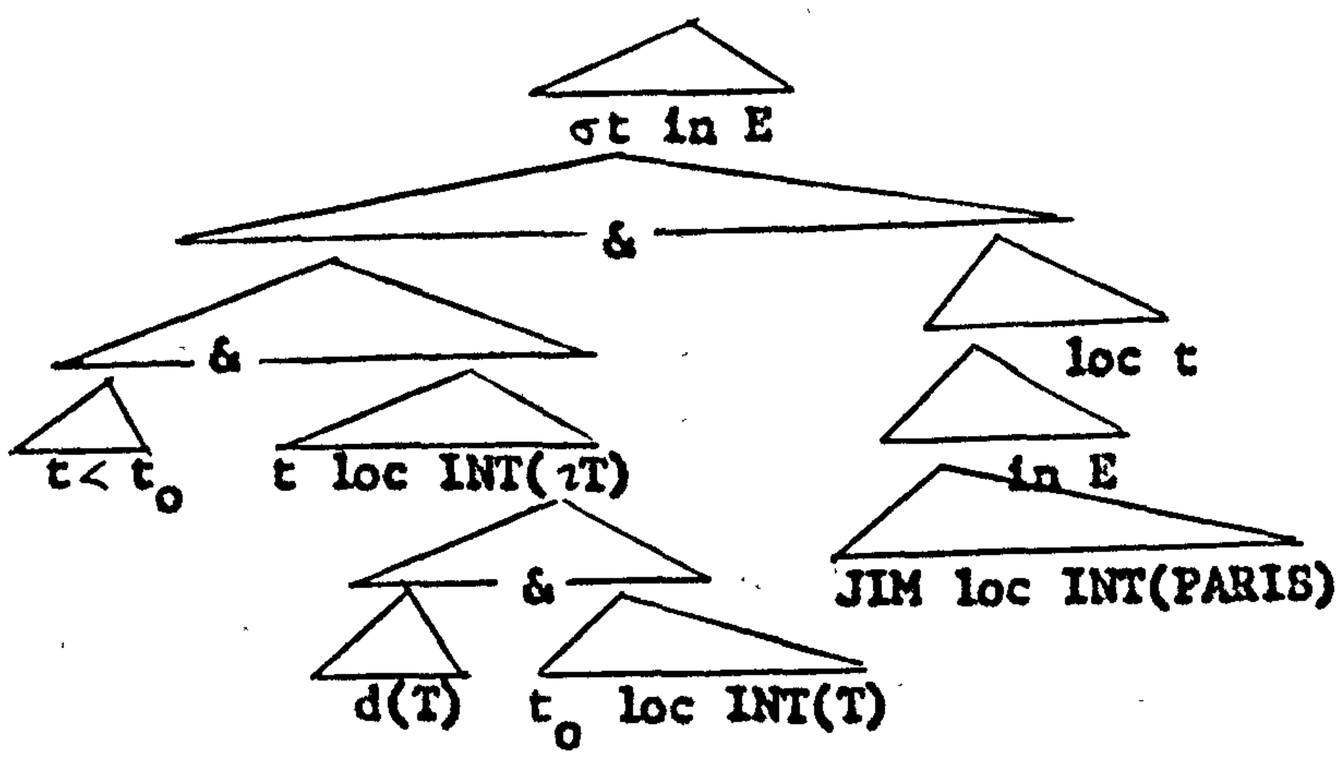


possibility suggests that there are past-tense sentences which simply assert the existence of a time prior to t_o, usually within a particular reference interval (such as that identified by 'today'), at which the situation described is in existence. Such a sentence is that in 9.,

9. Jim was in Paris (today)

for which the semantic representation in 10. is postulated.

10.



Similar observations and proposals can be made for the following sentences, which differ only in that it is a temporal interval rather than a point which the described situation is associated with and which is located wholly before or after t_o, depending upon whether the past tense or the modal auxiliary, respectively, is present:

11. a. Jim was in Paris {for the duration of / all during / throughout} that time

b. Jim was in Paris from 11:00 this morning to 5:00 this afternoon

c. Jim was in Paris for ten hours (today)

12. a. Jim will be in Paris {for the duration of / all during / throughout} that time

b. Jim will be in Paris from 11:00 this morning to 5:00 this afternoon

12. c. Jim will be in Paris for ten hours (today)

We will not go into the details of their semantic representations[1]:

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[1] We have not been able to investigate in any detail the meanings of the pair of expressions 'during' and 'throughout' nor to precisely determine the restrictions on the object of 'for'. However, a few relevant observations can be offered. First of all, it would appear that, in general, 'for' (in its durational application--cf. 'for the first time') must be followed by a noun phrase which identifies the measure of a temporal interval, either directly in terms of a number of temporal units (e.g. 'ten hours') or indirectly in terms of a particular (located) interval (e.g. 'that time') or situation (e.g. 'the meeting') plus explicit reference to the measure of that interval or situation by means of 'the duration of'. Exceptions to this statement involve sentences expressing the duration of 'scheduled situations' in the past, present or future (cf. below) in which case such noun phrases as 'the weekend', 'the afternoon', 'the exhibition', etc. are acceptable as the object of 'for'. However, with the second-order nominals, an additional nuance of "purpose" or "reason" is introduced, and this becomes the predominant semantic function when the scheduled situation is a momentary one:

1. Jim was in Paris for {the exhibition / the meeting / the arrival of the Queen}

In contrast to 'for', 'during' and 'throughout' reject as objects noun phrases which identify simply the measure of a temporal interval: the interval in question must be precisely located on the time axis--cf. sentences 2. and 3. 'During' on its own does not imply duration but

2. Jim was in Paris {during / throughout} {the summer / those five days / the time of the occupation}

3. *Jim was in Paris {during / throughout} {a weekend / five days}

only the existence within the interval identified by its object of one or more times at which the described situation is in existence. A durational (or 'universal') interpretation can be guaranteed only if 'all' is inserted:

4. Jim was in Paris (sometime/on several occasions/several times) during the summer

5. Jim was in Paris all during the summer

'Throughout'(cf. 'all through'), on the other hand, appears to be strictly durational in its interpretation. (For a more detailed discussion of a similar set of expressions in Dutch ('tijdens', 'gedurende' and '-lang') see Verkuyl, 1973--cf. also fn. 1 p. 192. Further observations on the difference between 'for' and 'during' can be found in Sandhagen, 1956.)

these can be derived in a more or less straightforward manner from ones given in §7.4 and from the above considerations of the distribution of given and new information.

If we now turn our attention to sentences which still express a locational relation of some sort but which contain a non-past rather than a past tense form, we find that an asymmetry arises according to whether a point-time adverbial (identifying the time of utterance) is present or one identifying either the extension of the situation being described or the interval within which it is located. With point-time adverbials referring to the time of utterance, there is no essential difference from the past tense cases: the situation is asserted to be in existence at t_o, as in 13. below, for example.

13. Jim is in Paris {now / at the moment / at this very minute}

However, whereas an interval of time can be located wholly before t_o or wholly after t_o--i.e. in the past or in the future--it cannot be located in its entirety at or within the point of time t_o. Hence, if a non-past tensed sentence describing a locational relation is accompanied by an adverbial which identifies such an interval, either with an existential interpretation (e.g. '(sometime) today') or a universal one (e.g. 'all this week', 'for these three hours', etc.), then the sentence must be interpreted in a special way. One possible interpretation is that whereby the sentence describes an at least partially or possibly future situation, as in the examples in 14. and 15. below. However, such a reading requires that the

14. Jim is in Paris {today / this week}

15. Jim is in Paris {all week / from 11:00 this morning to 5:00 this afternoon / for ten hours (today)}

situations involved be, in some sense, predictable or capable of being scheduled or decreed. Hence, sentences describing states which one generally does not have control over do not usually accept such an interpretation:

16. ?Jim has a headache {all week / from 11:00 this morning to 5:00 this /afternoon / for ten hours (today)}

When the temporal interval identified is one which recurs cyclically or one which is not specifically located on the time axis, then another kind of reading is possible. In 17. what is described as being

17. Jim is in Paris {from 11:00 to 5:00 (every day) (now) / for ten hours (today)}

in existence at t_o (or throughout the extended present $EP(t_o)$--cf. §7.7) is the complex state of affairs constituted by the regular repetition of a temporally bounded simplex locational relation. Such a composite state can itself take part in a 'future-as-scheduled' sentence like those in 15.--cf. 18. below. That this second interpretation is distinct

18. Jim is in Paris from 11:00 to 5:00 (every day) for the next two months

from the 'future-as-scheduled' interpretation[1] is evinced by the fact

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[1] These two interpretations are also possible in the past tense though the 'future-as-scheduled' interpretation appears to require implicitly or explicitly a reported speech context:

1. At that time during the summer Jim was in Paris from 11:00 to 5:00 (every day)

2. When Fred phoned the office at noon, he was told that Jim was in Paris from 11:00 that morning to 5:00 that afternoon

that situations which cannot be scheduled may still enter into the composition of such complex states, as illustrated by 19. The scheduling

19. Jim has a headache from 11:00 to 5:00 (every day)

of this resultant state is again, however, not very natural:

20. ?Jim has a headache from 11:00 to 5:00 every day for the next two months

This same overall pattern is, in general, true of sentences in the past and non-past tense describing dynamic situations as viewed in progressive aspect since these too involve an existential locative superordinate to the basic proposition which, within certain pragmatic constraints[1], renders them point-wise continuously projectable onto the temporal axis. Accordingly, we have the same range of tense-adverbial combinations with the same range of interpretations:

21. Fred was weeding the garden { at that moment / at noon today }

22. Fred will be weeding the garden { at that moment / at noon today }

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[1] These have mainly to do with sentences describing journeys: the closer these come to being minimal border-crossings (cf. §7.6), the more unnatural it is for their progressive aspect to have a temporal extension. Hence, although point-time adverbials remain appropriate, durational ones do not:

1. John was crossing the field { at that moment / for three minutes }

2. The Israeli jet was crossing the border into Syria { when its engine failed / *for two seconds }

23. Fred was weeding the garden {all during that time / from 9:00 this morning to 5:00 this / for ten hours (today) /afternoon}

24. Fred is weeding the garden {now / at the moment / at this very minute}

25. Fred is weeding the garden {today / this week}

26. Fred is weeding the garden {all day / from 9:00 this morning to 5:00 this / for ten hours (today) /afternoon}

27. ?It is raining {all week / from 9:00 this morning to 5:00 this afternoon / for ten hours (today)}

28. Fred is weeding the garden {from 9:00 to 5:00 (every day) (now) / for ten hours (every day) (now)}

What we should perhaps point out is that although a process (or state) which has a specified temporal or spatial extension (i.e. an extrinsically bounded situation) behaves in some respects like an inherently bounded situation, especially when not encoded in progressive aspect--cf. 29. and 30. below (cf. also fn. 1 p. 318)--in sentences

29. Bill practised for two hours every day

30. Paul read a book, rested for an hour, and then ate dinner

such as 31. below, progressive aspect must be understood as within the

31. Bill was practising for two hours

scope of the durational adverbial and not as superordinate to a bounded proposition characterizable as "Bill practise for two hours".

In such a sentence as 32., on the other hand, which describes an <u>inherently</u> bounded situation (i.e. the existential journey constituted

32. Bill was drawing a picture

by Bill bringing a picture into existence), the progressive aspect <u>is</u> superordinate to the proposition representing the bounded situation. A further superordinate durational adverbial giving, once again, the temporal bounds of the "being in existence" of the journey can, of course, co-occur as in 33. Hence, most generally, a situation which is bounded only by

33. Bill was drawing a picture for ten minutes

arbitrary, external temporal (or spatial) limits cannot be viewed in progressive aspect--cf. 34. and 34.--and this constraint appears to be

34. *Fred was sleeping for ten hours when we walked in the door

34. *Jim was running for a mile when he twisted his ankle

operative in Russian as well.[1]

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[1] The prefix 'pro-', which combines with imperfective stems such as 'stojat'' ("stand") and 'zit'' ("live") as well as dynamic imperfective stems, is used (in its 'perdurative' sense) only when the temporal or spatial extension of the described situation is specified. Although the derived verbs are formally like perfective verbs, they do not form secondary imperfectives (at least not in the "ongoing" interpretation of this latter) and are unlike perfectives in other ways (cf. Miller, 1970b, 1972; Forsyth, 1970). However, their semantic affinity to perfective verbs must also be reconciled. Miller (1972: 222) points out, following Isačenko, that "forms like 'prostojat'' and genuine perfective forms like 'napisat'' ('write') are semantically similar in that limits are set to the states or actions denoted by the verbs. In the case of 'prostojat'' the standing is limited to a specific stretch of time; in the case of 'napisat'' the action is limited (better, perhaps, 'delimited') in that it has a beginning and an end". Formally perfective verbs formed with another prefix, 'po-', which indicates that the action denoted by the stem is in existence for a short time, behave similarly to the 'pro-' verbs in not allowing secondary imperfectives with an "ongoing" interpretation.

Note, however, that there do appear to be sentences expressing propositions which are inherently or internally limited by a measured temporal or spatial extension; and the progressive form of these are considerably more acceptable than 34. and 34.:

1. Fred was working { his ten hours / his shift / the midnight shift } at the time of the robbery

(see next page)

This brings us finally to a consideration of the past and non-past tenses in sentences describing journeys and processes in general but lacking progressive aspect. We shall claim that, again, the past tense is simply a superficial or overt reflection of a "before now" ordering relationship of the temporal projection of the described situation and the non-past tense that of a "not before now" ordering relationship. The real difficulties, therefore, are not so much with tense but with the semantic correlates of the progressive form and its absence. The problem resides in whether the presence versus absence of the progressive form is to be regarded as a formal opposition (with the presence of 'be -ing' being the formally 'marked' form, its absence the 'unmarked' form) which is matched by a semantic opposition (often characterized in such terms as "imperfective"/"incomplete"/"partitive"/"ongoing" versus "perfective"/"complete"/"holistic"/"synoptic") or whether to view 'be -ing' simply as

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2. Jim was running a mile when he twisted his ankle

Again, there appears to be a correlation between objectivization of the locative expression and an accomplishment (i.e. journey) interpretation (cf. §7.6.3.1; S. Anderson, 1971) as illustrated in 3. and 4. below.

3. Jim ran a mile in four minutes
4. *Jim ran for a mile in four minutes

Although we have not given explicit attention to sentences such as 5.,

5. Jim ran for a mile

we can informally characterize the difference in meaning between it and 6. in the following manner. In 5. the existence of a spatial extent

6. Jim ran a mile

measuring one mile is asserted such that Jim began running at the beginning of it and stopped running at the end of it. In 6. the beginning and end of the same stretch constitute the source and goal, respectively, of an extended journey: Jim ran from one end of the one-mile stretch to the other end of it. That is, in 5. 'for a mile' identifies the spatial extension of the process of Jim running; in 6. 'a mile' identifies the stretch of space traversed by Jim

an additional constituent of the verb phrase (cf. Chomsky's (1957) auxiliary rule) carrying its own semantic content over and above that of the simple form of the verb. The former view has the inconvenience, especially if the semantic opposition is regarded as a privative opposition with "perfective" the marked member, that formal and semantic markedness do not correspond. Since it is more natural for formal and semantic oppositions to correspond in markedness, if a choice must be made between an analysis in which there is such a correspondence and one in which there is not, then, other things being equal, the former kind of analysis is the more desirable.

In fact, it has not generally been the case that the so-called formal opposition of simple versus progressive (cf. Jespersen's (1924) introduction of the terms 'unexpanded' and 'expanded') has been correlated with a privative semantic opposition of opposite markedness (e.g. "complete"/unspecified for "complete") although this is what is maintained by Allen (1966: 219) and in the similar though not entirely comparable case for Russian by Lyons (1968a: §7.5.6) and Forsyth (1970) (cf. fn. 1 p. 280). Rather, it has been more common to associate the formal distinction with an equipollent semantic contrast, by which we mean that both semantic specifications are 'positive' in that they each correspond to the presence of some element or configuration in the semantic representation of the sentence, even if these are notationally represented simply as the + and - specifications of a semantic component (as, for example, Macaulay's (1971) use of $\pm$ PERFECTIVE). (However, the assignment of the + specification to represent "perfective" and the - specification to represent "imperfective" is a convention which is always open to being interpreted as suggesting some sort of primacy for the + (i.e. 'positive' in a second sense) specification.) This type of analysis, therefore, need only reconcile the fact

that whereas one aspectual semantic configuration is overtly realized (by the progressive form), the other aspectual semantic configuration receives no formal marking. Unless this discrepancy can be justified, however, it behoves us to give serious consideration to the alternative analysis, i.e. that whereby the progressive form correlates with an optional semantic element or configuration and its absence simply with the absence of this semantic structure.

There are, in fact, common-sense reasons for adopting such a view (which has been implicit in our approach in the preceding chapter) in addition to the desirability of matching semantic structure (or the lack of it) with formal structure (or the lack of it). Intuitively, such elements of meaning which have been characterized "imperfective", "incomplete", "partitive", "ongoing"/"in progress" require for their explicit description an understanding of the notions "perfective", "complete", "holistic", "synoptic" and not the other way around. Before one can describe a situation as being incomplete or imperfective, one must be able to define the complete or perfective situation.

What we are suggesting is simply this. A situation described by a sentence or clause in the simple form, regardless of its tense or mood, is presented as a whole. By this we mean that all of its phases, if it has more than one, are included in the presentation. The situations described by such simple-form sentences as those below are simplex locational relations or states and as such have no inherent phases. Hence, in a trivial

36. Michael is a production manager

37. Douglas was in Victoria

sense, the described situations are presented as complete or whole. Of more interest are sentences describing situations which do have inherent

phases--i.e. a temporal-existential structure. The simplest cases are border-crossings which, as we have seen, are definitionally equivalent to two successive locational relations. Such situations have only one phase which is simultaneously its inception, termination and essence. Thus, in a somewhat less trivial sense, the situations described by such sentences as 38. and 39. are again presented as complete or whole; but this is simply

38. Fred lost his wallet

39. John found a two-penny piece

part and parcel of the realization process and nothing to do with some additional semantic configuration such as "complete" which is manifested as Ø.

Likewise for extended journeys. To say that the journey described in any of the following sentences, each of which contains the unexpanded

40. Simon crawled from Jane to Brian

41. Simon will crawl from Jane to Brian

42. Tell Simon to crawl from Jane to Brian

43. Someone forced Simon to crawl from Jane to Brian

form of the verb 'crawl', is presented as complete, or perfective, or as viewed as a whole, is no more than to say that for a particular semantic structure to be lexically and syntagmatically realized as 'Simon crawl from Jane to Brian', then it must contain all the relevant elements and configurations essential to representing the particular journey which is constituted by Simon crawling from Jane to Brian. That is, all the semantic structure corresponding to its beginning, its end, and the middle component between the two must be included. This, it must be stressed, is not to say that underlying 'Simon crawl from Jane to Brian' in each of

40. to 43. are semantic configurations parts of which could be realized by such structures as those in 44. to 46. (which would roughly correspond

44. Simon began to move from Jane to Brian

45. Simon was moving from Jane to Brian

46. Simon finished moving from Jane to Brian

to Miller's (1972) analysis of perfective aspect in Russian). This would be postulating more semantic structure than is justified, the point being that each of 44. to 46. incorporates a structure corresponding to the whole journey and not vice versa.

Nevertheless, we cannot deny that a sentence such as 40. can be maintained to imply each of 44. to 46. We should like to claim, however, that these are not straightforward entailments but rather involve a bit of 'computation' or 'deducing'. We shall attempt to explain what we mean by this. The following set of sentences are, we suggest, straightforward implications from 40.:

47. Simon left Jane

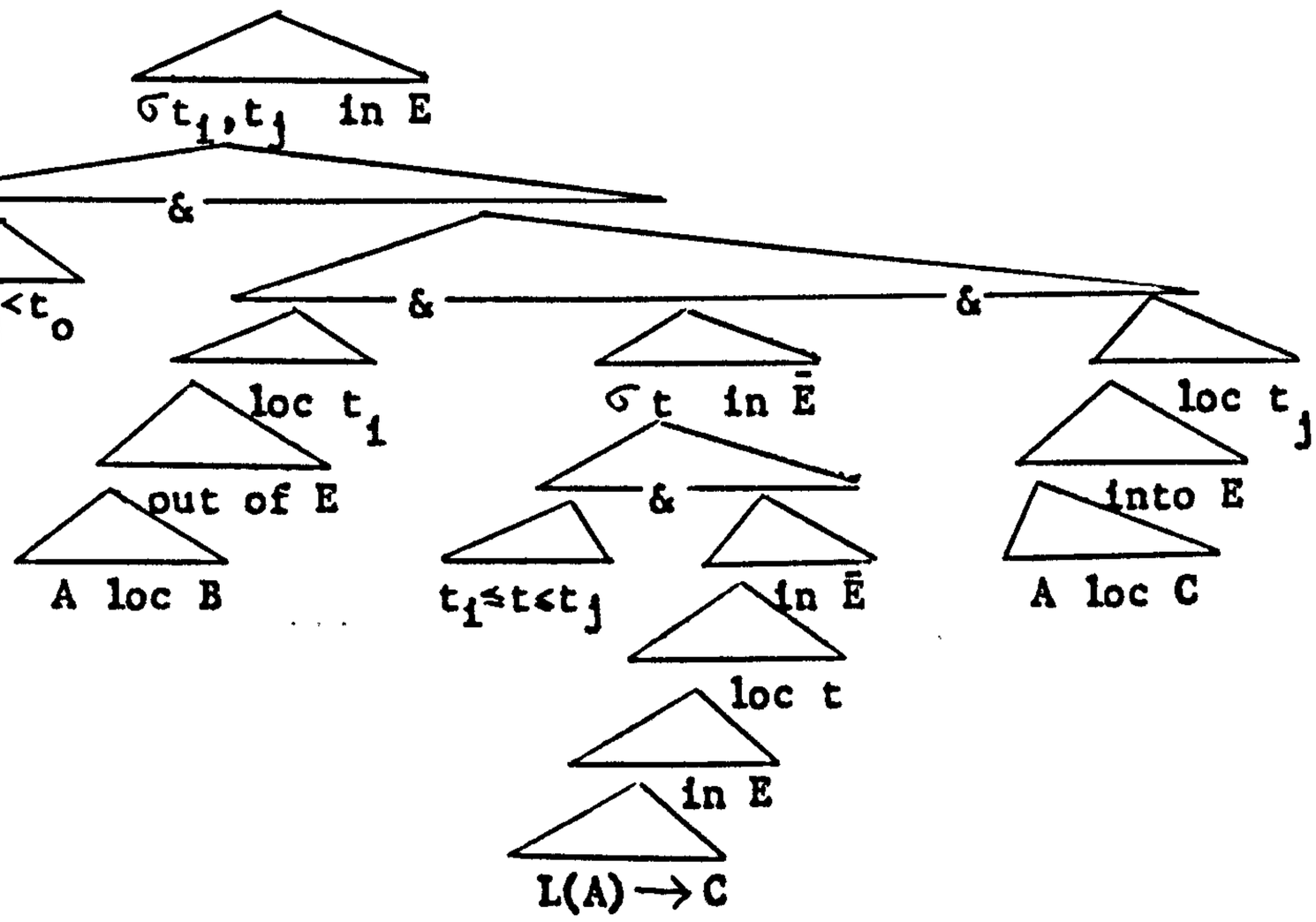
48. Simon was crawling towards Brian

49. Simon reached Brian

Recall that we characterized a journey of A from B to C as a process which begins with A ceasing to be at B, is in existence all the while A is moving towards C, and ends with A coming to be at C. What this amounts to is that such a journey is an ordered set of situations the first of which is A's leaving B and the last of which is A's arriving at C and all of which are instances of A moving towards C. Thus, the semantic representation of 40., including the specification which comes to be realized as the past tense,

is something like that in 50. Now, given such a semantic representation

50.



and the fact that it eventually is converted into the syntactic structure 'A move from B to C' and our characterization of 'finish (Y)', where Y is a journey of the type 'A move from B to C', we can derive the more complex entailments of 44. to 46. Thus, the simple form of a sentence describing a journey simply reflects the fact that all components of the journey are to be found or intended to be found on the time axis; and this is just a trivial consequence of the realization process. Whether this composite temporal projection is wholly before or wholly after the time of utterance will determine the tense form or satisfy a modal requirement, respectively. If, however, it is overlapping with t_o, all that can be asserted at t_o is that the complete journey is in progress--i.e. the whole situation is viewed in progressive aspect (cf. structure 232 . p. 449)--or the "movement towards" component is asserted to be in existence (again, this will involve progressive aspect since "movement towards" is a temporally-existentially structured proposition).

The situation is not much different in the case of inherently bounded

relations such as that described in 51. below. This sentence has the

51. Miranda slept this afternoon

simple entailments in 52., 53. and 54. which follow directly from the

52. Miranda fell asleep this afternoon

53. Miranda was asleep this afternoon

54. Miranda woke up this afternoon

internal structure we have suggested for a sentence such as 51. in §7.8. Furthermore, it has the derived implications in 55. to 57. which can be

55. Miranda began sleeping

56. Miranda was sleeping

57. Miranda stopped sleeping

'computed' from 51. and the characterizations given for 'to sleep', the verbs of aktionsarten and progressive aspect. Since there is no final location to be reached by means of a directional process, 'finish' is not applicable but merely 'stop'.

Processes which we have so far treated as inherently non-bounded--e.g. movement towards, walking, talking, singing, working, etc.--appear to present a counterexample to the kind of analysis of the unexpanded form which we are suggesting since a sentence such as 58. has what we have

58. Fred talked during the lecture

been calling the derived implications in 59. to 61. without, apparently,

59. Fred began talking during the lecture

60. Fred was talking during the lecture

61. Fred stopped talking during the lecture

having simple ones comparable to 47. to 49. and 52. to 54. This might be taken as suggesting that an analysis of the simple form as involving semantically a superordinate conjunction of entry into, location in and exit from existence of the described process as, in fact, was proposed in §7.4.4 must be accepted after all.[1] However, there is an alternative which, though speculative in nature, would enable us to retain our analysis which has been workable for all the other proposition types. Let us suppose, as suggested in §7.8, that all such processes involve a sequence of one or more journeys of some kind in much the same way as movement towards C was found to be analyzable as a succession of border-crossings in the direction of C. Whether such sequences have special lexicalizations--'become successively closer to'/'move towards', 'walk'/'take (some) steps', 'talk'/'utter (some) words'--or not will be arbitrary facts of the lexicon. Although the number of repetitions or constituent journeys is indefinite, there will be a first and a last one and the inherent beginning of the first will be the beginning of the whole process and the inherent end of the last the end of the whole process. Accordingly, such processes could be considered to be quasi-inherently bounded by virtue of the inherent bounds of their constituent journeys. However, such proposals must be regarded as extremely tentative as it is difficult to see what kinds of linguistic evidence could be brought to bear on the question. We must perforce leave it very much up in the air.

Before turning to the analysis of inclusive tense, let us consider once again sentences describing border-crossings. Since these are defined

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1 And note that, although a privative opposition is not involved, such an analysis leads to the correlation of the more complex semantic configuration (i.e. X into E & X in E & X out of E) with the simpler formal structure (i.e. ∅) and the simpler semantic configuration (i.e. X in E) with the more complex formal structure (i.e. the progressive form).

as having point-time locations, one might expect that, unlike extended journeys, they could be located at t_o--i.e. that non-past tense sentences could describe a border-crossing whose temporal projection is simultaneous with the time of utterance. However, in addition to the fact that the semantic representations for -- border-crossings are derived structures from two consecutive locational relations, and hence not strictly momentary, there is the problem that a significant discrepancy always exists between the time of perceiving (or conceptualizing) a situation and the time taken to encode and produce the sentence describing that situation (cf. Bull, 1960). Hence, even those situations which are ideal border-crossings cannot be located at t_o in a natural, stylistically neutral fashion by means of the simple non-past form. Sentence 62. would be

62. John catches the ball

appropriate (in a non-habitual reading) only in such special circumstances as a sports commentary. Among the alternatives are (1) use of progressive aspect, (2) encoding simply the final state, letting the context provide the inceptive force (i.e. the information that immediately preceding t_o the final state was not in existence) and (3) use of the non-past inclusive tense (again depending on the context, such as the presence of particular adverbials, to indicate that the event is minimally close to t_o). These possibilities are illustrated below.

63. John is catching the ball

64. John (now) has the ball

65. John has (just) caught the ball

8.2.2 Inclusive tense

The 'perfect', or what we have suggested be called inclusive tense, is a linguistic device which has long intrigued and troubled linguists, both from a diachronic and a synchronic perspective. This prolonged interest has

consequently led to an enormous literature but, unfortunately, to no general concensus as to its semantic correlate(s) or even, more generally, to its semantic function. Some scholars maintain that it is a tense, some an aspectual category, others neither of these (cf. Bauer's (1970) 'status', Joos'(1964) and Macaulay's (1972) 'phase'). We have already given our reasons for treating 'have -*e*n' as a tense (cf. 5.2.2) but have also recognized its secondary status as such and the fact that it has aspectual implications in a certain, well-defined set of contexts. Central to the analysis of 'have -en' as a tense is the observation that it involves the introduction of a secondary (and often indefinite) temporal reference point prior to that established or reflected by the primary tense specification. These two reference points together delimit a temporal reference interval which, for convenience, we will refer to as the 'inclusive period'. In recent discussions in syntax, this dual-time-reference interpretation of the 'present perfect' and the 'past perfect' has taken the form of treating 'have' as the realization of a past tense specification embedded within a higher non-past or past tense specification, respectively (cf., for example, Huddleston, 1969; McCawley, 1971b; Anderson, 1972; 1973c[1]). There are,

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[1] Anderson's (1973c) analysis of inclusive tense does not, strictly speaking, treat 'have' as realizing an embedded past tense but rather as being inserted as a 'secondary predication' into certain syntactic configurations: "In certain languages, typically above transitive verbs, the presence of a perfect configuration, i.e. a -past temporal predication immediately above a +past, entails the introduction above the lower temporal (as secondary predications) of a 'have' structure above a 'dative of interest' locational" (p. 98). Although such an analysis might have the appearance of being unnecessarily complex when compared, say, to that of McCawley (1971b), it has the distinct merit of enabling one to show and explain the relationship (synchronic and diachronic) between this use of 'have' and its other uses in locative and possessive constructions (e.g. The material has a flaw in it, Fred has a MGB) as well as its relationship to passive constructions (cf. John has repaired the watch, The watch is repaired, John has the watch repaired). Unfortunately, we cannot go into the details of Anderson's proposals regarding the syntactic machinery involved in capturing these relationships and, in particular, converting such derived configurations into surface sentences.

of course, historical antecedents for this view of the non-past and past inclusive tenses as involving two time references (cf. Sweet, 1900; Jespersen, 1924; Poutsma, 1926; Curme, 1931; Kruisinga, 1931). The similar but, as we shall find, less comprehensive notion of reference to a period of time including as its end-point the primary temporal reference point, as currently exploited by such linguists as Ota (1963), Palmer (1965) and Leech (1969)[1], appears to have been first articulated in a precise fashion by Bryan (1936).

It has been customary to recognize at least two apparently distinct uses or functions of inclusive tense forms: the so-called 'resultative' or 'retrospective' and the 'inclusive' or 'continuative'. (We shall adopt the term 'universal' for the latter in order to avoid confusion with 'inclusive tense' and with 'continuative aktionsart'. The import of this term will become clear below.) Poutsma's characterization of these two uses is one of the more precisely formulated:

> ...this tense in its primary application [i.e. in its resultative use] expresses a blending of two elements, viz., it states a) that the action or state referred to belongs to the past time-sphere, b) that this action or state produced a result belonging to the present time-sphere. Thus I have written a letter places the action of writing in the past time-sphere, but at the same time implies the finished state of a letter in the present.
>
> (Poutsma, 1926: 209-10)

> ...a function of the perfect [i.e. its universal use] is that of representing an action or state as continuing from a point of time in the past to the moment of speaking or writing. The sentence then contains an adverbial adjunct or clause denoting the length of time; e.g.: I have known him two years (already).
>
> (ibid.: 212)

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[1] However, reference to the inclusive period figures only in three of the four uses of inclusive tense recognized by Leech.

It will be observed from this quotation that Poutsma regards the resultative use[1] as primary or basic. This view is also upheld by Kruisinga (1931) and, most recently and explicitly, maintained by Bauer (1970), who regards the universal interpretation as strictly a 'combinatory variant' of the resultative. However, such attempts of this nature to give a unitary description of the inclusive form rest on the somewhat dangerous assumption that such a 'Grundebedeutung' corresponds to one of the manifested interpretations. However, the alternative and preferable approach of seeking a basic meaning each distinct manifestation of which is contextu-

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1 However, Poutsma's reference to states producing results is symptomatic of the general confusion between logical implications and pragmatic inferences or conclusions which still finds its way into current discussion (cf. Palmer, 1965; McCawley, 1971b). We will be touching on this matter below, but for now we can illustrate the problem with another of Poutsma's examples of the resultative use of the inclusive tense which no doubt motivated his inclusion of 'result-producing states' in the quotation above. He states (1926: 256-7): "It has been observed...that one of the functions of the perfect is to describe an action or state of the past whose results or consequences extend to the present; e.g.: I have written a letter; result: I have a letter in a finished state. He has received a good education; result: He is a well-educated man. I have never been in London; result: I am strange in London..." The first two examples (each involving sentences describing journeys) represent valid logical entailments (cf. our discussion of 'consequence' below). It is different in the case of Poutsma's third example. Ignoring the fact that I am strange in London is a rather unlikely sentence in colloquial English, there are two ways in which Poutsma may have intended it to be understood, and neither of these allows it to be treated in the same way as his other two examples. First, 'to be strange in' could be interpreted as "to be unfamiliar with"/"to not know one's way about"/etc. In this case I am strange in London is only a pragmatic or 'common-sense' conclusion to be drawn from I have never been in London: contexts could be imagined in which the latter is true and the former false. In its second possible interpretation, 'to be strange in' means simply "to have never been in". That is, it would be a lexicalization of some such structure as underlies 'to have never been in' just as 'to be a virgin' is, as we shall argue in §8.3.3.3, a lexicalization of some such structure as that underlying 'to have never had sexual intercourse'. Although the relation between the two sentences in this case is logical rather than pragmatic, it is one of equivalence rather than of consequence.

ally conditioned can also run into difficulty if one begins with a characterization which is so general or inexplicit that all interpretations can be accounted for without having to consider the interplay of contextual elements. This appears to have been the fate of Twaddell's (1960) notion of 'current relevance' and Sørensen's (1964) application of 'accomplished fact', which latter is not so much vague as semantically loaded. Bauer (1970: 191), for example, adopts Sørensen's notion of 'accomplished fact' and sees the basic function of inclusive tense as follows: "the action, anterior as such to a certain point of reference (frequently, but not necessarily, the moment of speaking), is viewed as being, at this point of reference, an accomplished fact". However, such a characterization simply begs the question as to what a fact is and, in particular, what it could mean for a fact to be accomplished.

Before pursuing this problem further, however, we must point out some of the other uses of inclusive tense which have been distinguished by various linguists in addition to or within the resultative and the universal. Leech (1969), for example, makes a distinction within the universal (or what he calls the durational) interpretation of inclusive tense between the continuation of a state throughout the inclusive period and the duration of a habit, i.e. of a set of repeated events, throughout the inclusive period. The two are illustrated in 66. and 67., respectively.

66. John has loathed hypocrisy all his life

67. She has made her own dresses since she was a girl

Leech rightly points out that these two uses are paralleled in the non-inclusive non-past tense: the relevant examples are given in 68. and 69.

68. John loathes hypocrisy

69. She makes her own dresses

He fails to observe, however, the same correspondence in the non-inclusive past tense, exemplified in 70. and 71. below. Thus, there is nothing

70. John loathed hypocrisy all his life

71. She made her own dresses from the time she was a girl

peculiar to inclusive tense about these two interpretations or uses; and we can safely disregard the distinction in the present discussion.

Leech also recognizes an 'indefinite past' interpretation characterized as "happening at least once in a period leading up to the present" (Leech, 1969: 155). This appears to correspond to McCawley's category of 'existential perfects' which "indicate the existence of past events" (McCawley, 1971b: 105). Furthermore, Zandvoort's (1932, 1966) 'perfect of experience' which "expresses what has happened once or more than once, within the speaker's or writer's experience" (1966: 62) can be regarded as a special case of the indefinite past interpretation. Examples are given below from each of Leech (1969), McCawley (1971b) and Zandvoort (1932), respectively:

72. John has been to the Scottish Highlands

73. I have read Principia Mathematica five times

74. When I have asked a London policeman the way, I have invariably received a polite answer

Finally, we may mention McCawley's claim that there are also sentences which involve a 'hot-news' use of inclusive tense: "it is clear that the status as news of the thing being reported is essential to the acceptability of the sentence...a person reporting hot news presupposes that his addressee does not yet know the news that he is reporting" (McCawley, 1971b: 109). As an example of this use, McCawley gives the following

sentence which, he maintains, would be a normal thing to say to a person who had been out of touch with civilization since 1960:

75. Kennedy has been assassinated

However, we see no justification for distinguishing this use of inclusive tense from that of 'indefinite past' or 'existential'. All that is involved is that the inclusive period of reference is established in terms of the addressee's circumstances (cf. 'Since you were marooned on that island...', 'During the time you've been lost...') rather than the speaker's (as in the perfect of experience); and this information will be derivable, in general, from the textual context. McCawley's reasons for wishing to treat this as distinct from the existential interpretation includes his contention that the constraint or presupposition that the subject of a non-past inclusive sentence must be alive or in existence at t_o (cf. Leech, 1969; Anderson, 1973h) or, as McCawley would have it, that "the present is included in the period in which the designatum of the propositional function in question can happen or be the case" (McCawley, 1971b: 107), is relaxed in the 'hot-news' perfect. He states (ibid.: 109): "if the addressee does not know that Malcolm X has been killed, then for him the period in which Malcolm X might be killed extends indefinitely far into the future and thus includes the present". However, in the examples given by McCawley, such as 75. above and 76., the relaxing

76. When I arrived in New York, Malcolm X had just been assassinated

of this constraint has nothing to do with their status as hot news but rather with the fact that both 75. and 76., for example, assert a change in the existential status of their subject. As Anderson (1973e: 49) has observed,

"it follows from a very general constraint on semantic representations that an existential status is not attributed to an argument of whom an existential status is also predicated: otherwise, a tautology (The late president is dead) or a contradiction (The late president is alive) arises". Accordingly, although McCawley's other example--77. below--

77. Khrushchev has been deposed

would have been appropriate as an existential perfect (and, as a particular case, as a hot-news perfect) at the time of his writing the article, it is no longer appropriate even in the particularized context of hot news since Khrushchev has died since that time. The sentence is not concerned with a change of his existential status, and thus the constraint on the existence of the referent of the subject noun phrase would have to be satisfied for the inclusive form to appear. Sentence 78. would, instead,

78. Khrushchev was deposed and has since died

be the appropriate comment in the hot-news contexts which McCawley has in mind. Accordingly, it cannot be maintained that a hot-news interpretation can be used in contexts where the existential interpretation would be inappropriate and/that it must therefore be distinguished from it.

This leaves us with three uses of the inclusive tense to reconcile--the resultative, the universal and the existential. Although such polysemic approaches as those of Leech (1969) and McCawley (1971b) may implicitly regard these different interpretations as somehow contextually determined and hence ultimately relatable to a single semantic configuration[1], there has usually been no systematic attempt made to unravel the

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[1] For example, McCawley (1971b: 105) suggests that "all...these senses of the present perfect correspond to semantic representations in which something that provides the source of a past tense is embedded in something that provides the source of a present tense".

elements involved in the contextual interaction.

There are, of course, exceptions to this statement. As early as 1936, Bryan maintained that inclusive tense can sustain a unitary semantic description and set out to demonstrate that its various manifested functions or interpretations are the result of the interaction of this meaning with various contextual factors. In fact, he explicitly specified the essential meaning of the inclusive tenses (i.e. inclusive tense in conjunction with the past or non-past tense) to be that which has found acceptance by many today, namely as involving reference to an 'inclusive period'. In view of the relevance of Bryan's proposals to the present discussion, it is worthwhile quoting his statement in full:

> If time is represented by a line, the use of the perfect can be illustrated on a line which may stretch indefinitely into the past and which extends fully up to the present.
>
> 
>
>
> The perfect tense merely places the occurrence of an action or the existence of a state upon a segment of this line bounded at one extreme by the present moment and at the other by a point a^1, a^2, a^3, which may be placed anywhere along the line. That is, the perfect tense merely includes an action or state within certain limits of time, and as a tense form it seems to me to do no more than this.
>
> (Bryan, 1936: 367)

Bryan sees the universal interpretation of the inclusive tense forms as following in a straightforward manner from the above characterization and as requiring no further comment. However, he is tacitly assuming the correctness of the observations he quotes from Poutsma (1926: 212) and Jespersen (1933: 241) to the effect that this interpretation comes to the fore in the context of an adverbial specification relating to the measure or the beginning point of the inclusive period. This point is stressed by Bauer (1970) who suggests that such an adverbial is indespensable or

non-omissible for the universal interpretation. Although it would seem that such a contextual requirement is, in general, necessary, we should like to stress that a universal interpretation is not thereby guaranteed. A sentence such as 79. below can sustain both universal and existential readings. The latter interpretation,

79. Fred has lived in Paris since 1950

however, is ruled out if 'ever' is inserted, and it is this which we may consider as guaranteeing the universal interpretation-- cf. sentence 80. An existential reading of 79. can be forced by inserting a counting (i.e. a number-of-times) adverbial, as in 81.

80. Fred has lived in Paris ever since 1950

81. Fred has lived in Paris several times since 1950

Similar observations can be made with regard to sentence 82. which

82. Fred has lived in Paris for ten years

can also sustain both interpretations. The existential reading requires 'for ten years' to be understood as identifying the temporal limits of a situation, this bounded situation then being located within the inclusive period, rather than as identifying the measure of the inclusive period, throughout which the described situation is in existence. If one were to expand the adverbial with 'these past', the existential interpretation would be considerably less likely, if not impossible, since the durational adverbial would then identify the measure of an interval coincident with that implicated by the presence of inclusive tense.

Bauer (1970) also claims that the verb must be 'atelic'

(cf. § 6.3.4.1) in order that the interpretation of the inclusive tense form be a universal one. However, we have seen that it is not simply the verb but the entire predication or, as we should prefer to say, the type of proposition begin expressed which is telic or atelic (or, more generally, bounded or non-bounded). Furthermore, we have noted above that a sentence expressing the iteration or the regular repetition of a bounded process behaves like one describing a single non-bounded situation as regards its pattern of temporal modification. Accordingly, the indefinite plural 'dresses' in 83. below, indicating an indefinite number of

83. Mary has made her own dresses ever since she was a girl

repetitions of the bounded process of making a dress, makes the

universal interpretation possible.[1,2]

Before proceeding to a discussion of the resultative interpretation, let us pause here to determine how the existential and universal interpretations can be represented within our framework. Consider, for example, the two interpretations which can be given to sentence 84. below. Under the existential reading of 84.,

84. John has been in his room since noon

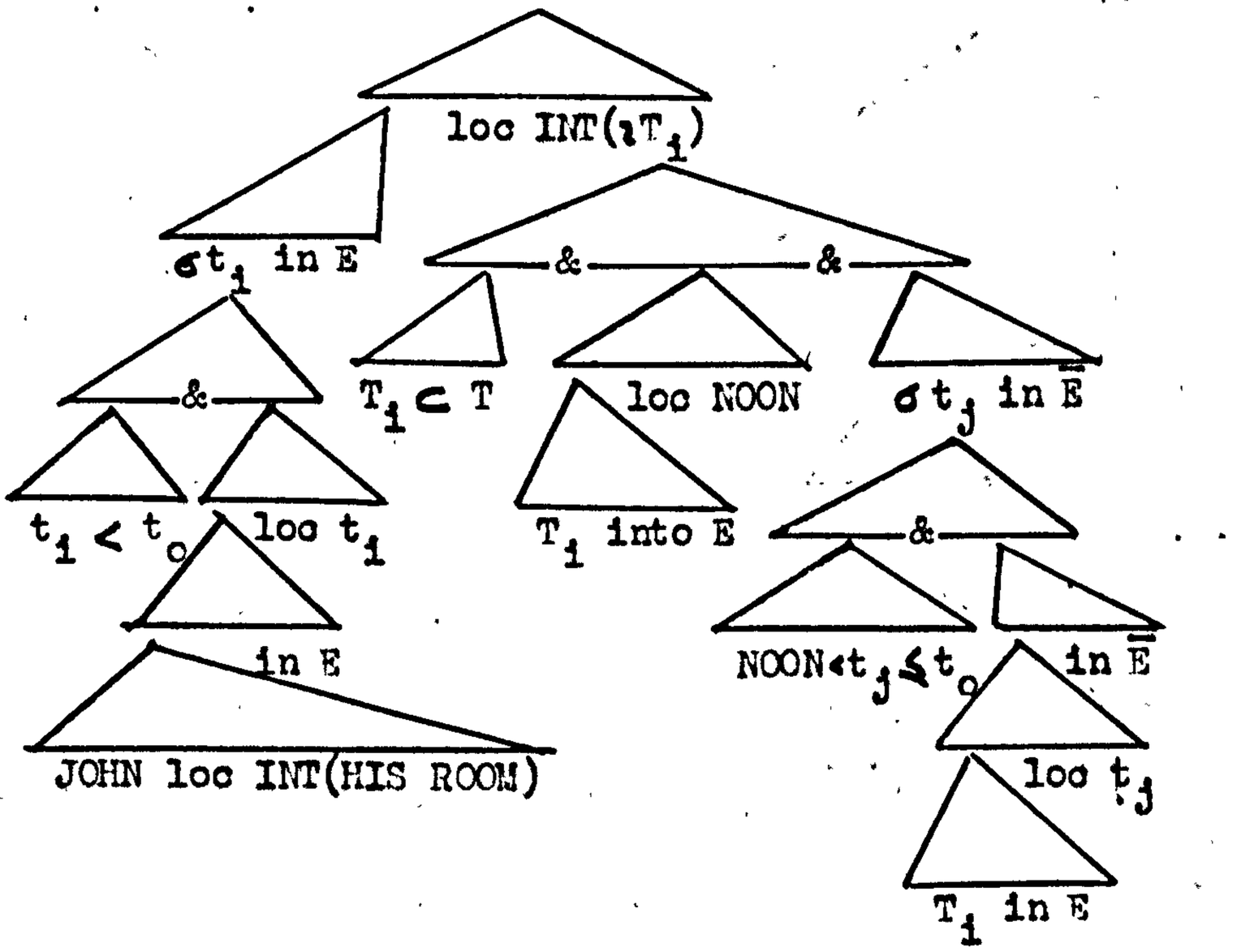
---

[1] Sørensen (1964), who is also very much concerned with the role of the context in determining how inclusive-tense sentences are understood, astutely observes that many pseudo-problems arise simply from an unfortunate choice of examples. Thus, the use of first-person subjects or of 'here' or of both in sentences capable of, though not requiring, a universal interpretation increases the possibility or even necessitates that it be so interpreted--e.g. as in the well-worn example We have lived here for years. Sørensen (1964: 77) remarks: "Suppose, for the sake of argument, that 'I have been here for some time' necessarily refers to the situation in which the sentence is uttered, that, in other words, 'have been' is a perfect of inclusive time [i.e. has a universal interpretation]. However, if that is so, then 'have been' in 'I have been there for some time' is necessarily a complete perfect, a perfect of exclusive time [i.e. has an existential interpretation], since it is logically impossible for the speaker ('I') to be where he is not, namely there. And that goes to prove that the question of inclusive time...is one concerning the words 'here' and 'there', not one concerning 'have been'...."

[2] A recent attempt to make formally explicit the contextual variants of inclusive tense is Dillon's (1973) study within a case grammar framework (that of Anderson, 1971b). However, Dillon sets out to account for everything in terms of (various combinations of) feature specifications on the verb (or clause). He postulates such features as COMPLETIVE, INCEPTIVE, DESISTIVE, DURATIVE, and MOMENTARY, all of which, as we have seen, cannot be treated as semantic primitives if one wishes to account for the relationships between them and the semantic relationships they enter into.

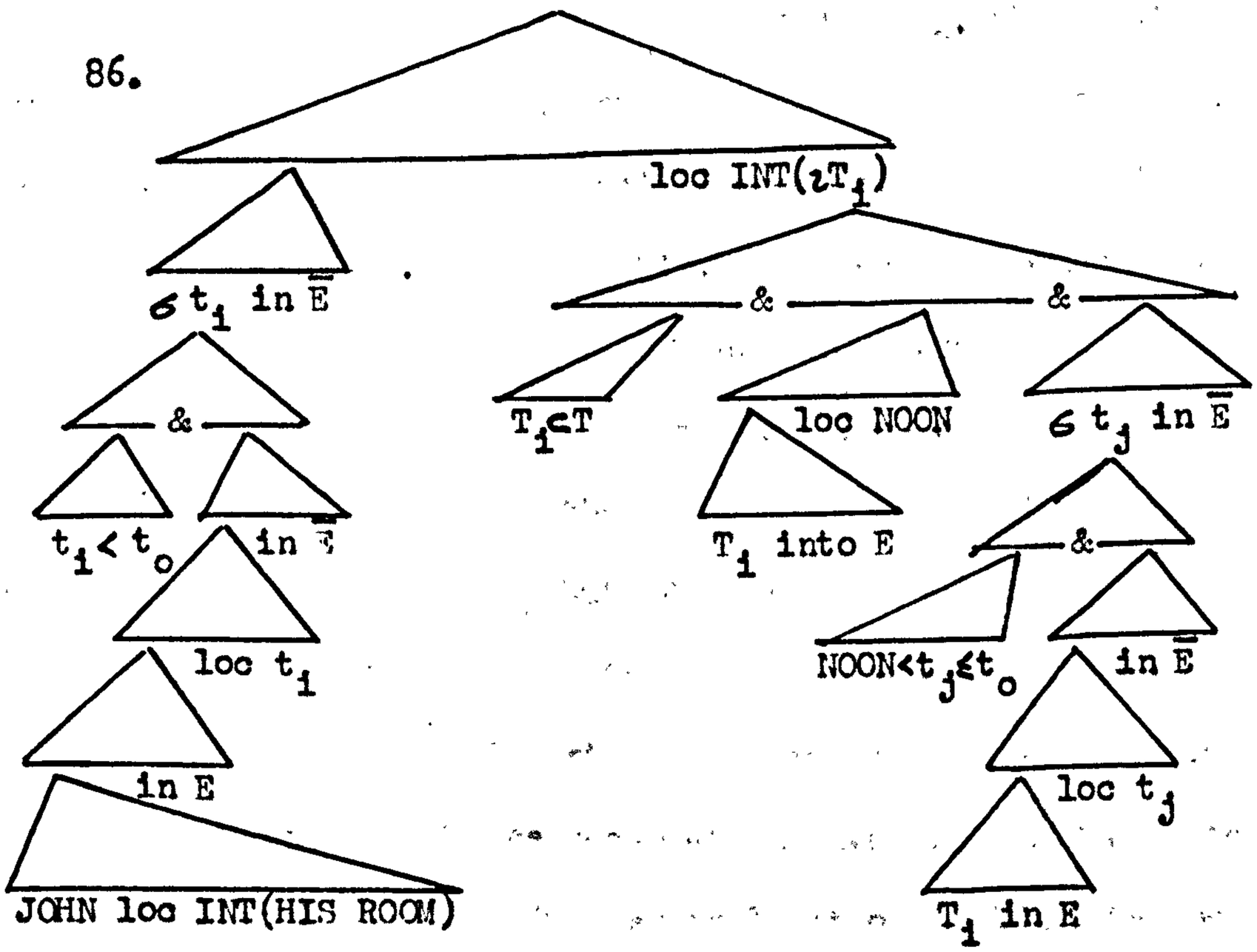
it is understood that there exists some time(s)/occasion(s) prior to t_b in the temporal interval beginning at noon (today) and extending up to and including (but not necessarily ending at) t_o at/on which the locational relation of John being in his room is in existence. We can represent this information as in 85. below, the structure

85.



subordinate to T_i being that underlying 'since noon'. The universal interpretation of 84. is identical to 85. except that t_i is universally quantified. That is, it is asserted that there is no time/occasion prior to t_o in the period beginning at noon and extending up to and including t_o for which it is not the case that John is in his room at that time. This information is represented in 86. It is the doubly negated existential structure on the left

86.



which is presumably can be optionally spelled out as 'ever'.

Other adverbials besides 'since' expressions may occur in inclusive-tense sentences having both universal and existential readings, the main ones being the deictic expressions identifying various intervals which can be interpreted as including t_o, such as 'today', 'this week', 'this year', etc. In this case, the universal structure in 86. is realized as 'all'--cf. 87.

87. John has been in his room { several times today / all (to)day

With other adverbials, however, only one or other of the two interpretations may be possible: sentence 88. can be interpreted only universally, 89. only existentially. In the absence of an

88. John has been in his room for the past three hours

89. John has been in his room (once or twice) in the past three hours

92. John has been in his room all this time

The possibility of an inclusive-tense sentence having both an existential and a universal interpretation resides strictly in the nature of the situation being described. Only sentences describing situations which, in general, are projectible onto the temporal axis in a homogeneous and continuous fashion can sustain both interpretations. As we have seen, locational relations (states), processes viewed in progressive aspect, and iterative structures--i.e. situations which are non-bounded with respect to their most superordinate existential structure--have this property. Cases where this generalization appears to fail--for example, in Leech's (1969) examples below--are not semantically ill-formed but only

93. Paris has stood on the Seine

94. Elephants have been the largest land-mammals

pragmatically implausible in the existential reading (which is forced by the lack of an adverbial specifying an inclusive period). The oddness arises from the fact that an existential reading does not exclude the possibility that there are also times in the extended present when, for example, Paris does <u>not</u> stand on the Seine or when elephants are <u>not</u> the largest land-mammals; and such changes of physical location or of relative size are, in such cases, known to be most unlikely.

Accordingly, sentences which describe (non-iterated) bounded situations not viewed in progressive aspect can sustain only an existential interpretation (or a resultative one--cf. below). Even

sentences such as 95. to 97., in which the boundedness of the

95. John has slept since tea time

96. Jack has travelled since 9:00 this morning

97. Catherine has worked since waking up this morning

situation is minimal (leaving aside the question of whether it is quasi-inherent or due to some "perfective" element in the use of the simple form), are awkward under a universal interpretation. This becomes more apparent when 'ever' is inserted--cf. 98. to 100. below with their non-bounded counterparts in 101. to 103.:

98. *John has slept ever since tea time

99. *Jack has travelled ever since 9:00 this morning

100. *Catherine has worked ever since waking up this morning

101. John has been {asleep / sleeping} ever since tea time

102. Jack has been travelling ever since 9:00 this morning

103. Catherine has been {at work / working} since getting up this morning

Let us now turn our attention to the resultative interpretation of the inclusive tense, as illustrated (along with their logical 'consequents') in the sentences below:

104. Peter has gone to Paris ⊃ Peter is in Paris

105. Fred has lost consciousness ⊃ Fred is unconscious

106. Mary has received the instructions ⊃ Mary has the instructions

107. John has entered the house ⊃ John is in the house

Although Bryan (1936) does not take into account the proposition

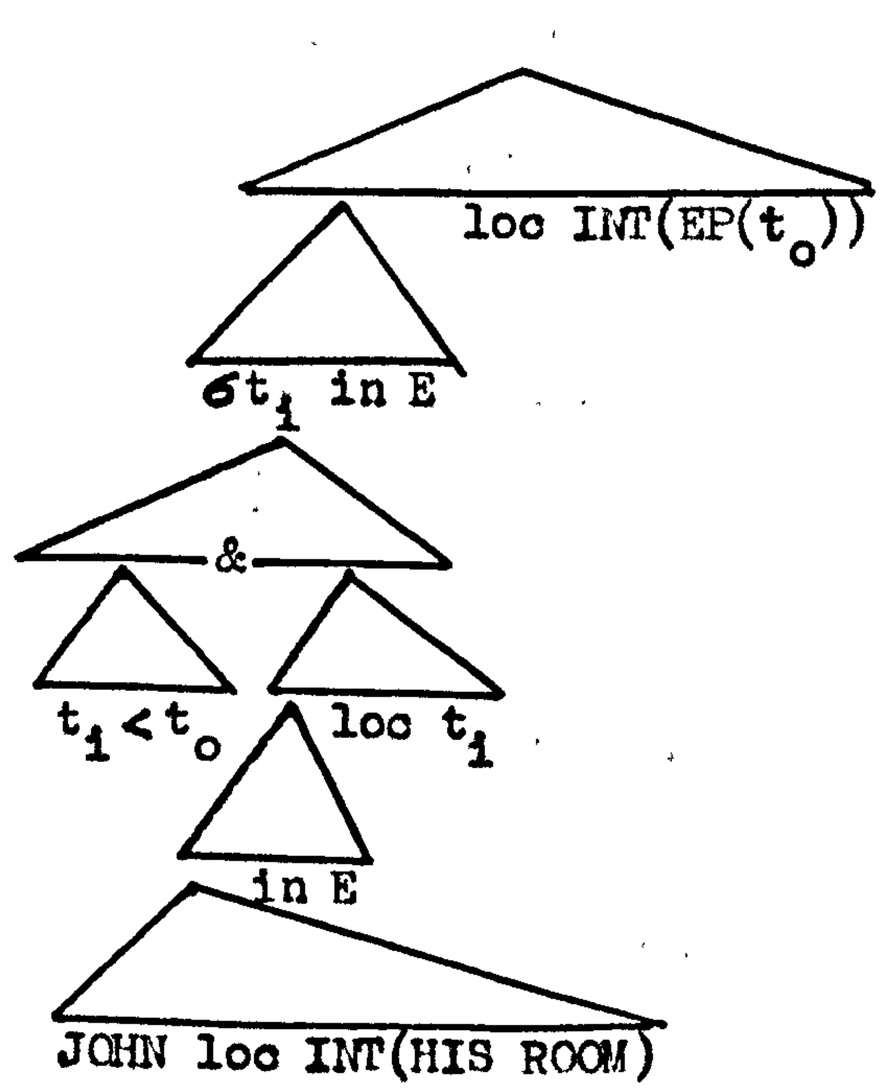
type in the case of the universal interpretation, he does observe its role in the resultative interpretation: "...the verb write when used transitively, because of its character and meaning, normally implies a finished state just as much with the preterite "I wrote a letter" as with the perfect "I have written a letter". Receive in "He has received a good education" is of similar force. ...whatever notion there may be of results or consequences, in so far as it is not purely a reasonable inference, is conveyed not through the perfect tense-form but through the character of the verb and the meaning of the words composing the statements" (Bryan, 1936: 369-70). However, Bryan fails to observe that although the implication of result is not peculiar to the use of inclusive tense, the implication that the result is still in effect at t_o is. It is this semantic property which Jespersen (1924: 264) is focussing on when he remarks: ""He has become mad" means that he is mad now, while "he became mad" says nothing of his present state".

Bryan's failure here arises from his confusion over (but not lack of awareness of) the distinction between a natural or plausible pragmatic result of the action described in a non-past inclusive sentence which might, at t_o, be the case and the state which is the logical result of the action described and which, by dint of the inclusive tense, is understood as being true at t_o. This latter is the semantic relation of consequence (cf. Lyons' (1963) use of the term in respect to Greek, in which a comparable relation holds). Because of the confusion, this important property of inclusive tense sentences has tended to be ignored or overlooked in recent discussions

adverbial specifying an interval inclusive of t_o, the existential interpretation is preferred, perhaps because it represents the weaker assertion. The universal interpretation depends to a greater extent on contextual backing to specify a bounded interval, or at least the beginning point of such an interval, which can function as the domain of the quantificational structure. For the existential reading, on the other hand, an implicit appeal to an interval inclusive of t_o but of indefinite extension appears to be sufficient. The actual extension of such an "extended present" will be determined by the context and setting of the sentence. Accordingly, we have the representation given in 91. for sentence 90. below, which, without further explicit or implicit temporal

90. John has been in his room

91.



$EP(t_o)$ = "the extended present of t_o"

modification, will be interpreted existentially. Perhaps the closest parallel to 90. with a strictly universal interpretation is a sentence such as 92.

or has led to the surmise that what result is intended in such cases is unsystematic and depends upon the whole gamut of contextual factors and must even include 'nil results' (cf. Sørensen, 1964; Palmer, 1965; Bauer, 1970; McCawley, 1971b)[1].

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[1] Palmer (1965: 73), for example, observes: "A common explanation of such examples is that the perfect is used where the activity has results in the present. This is, however, rather misleading unless we interpret results to include 'nil results' as is shown by:

> I've hit it twice, but it's still standing up
> I've written, but they haven't replied"

However, whereas the logical consequence of my having written (a letter to them) is that a letter to them exists, the possibility of them replying is a pragmatic inference or result which depends upon, amongst other things, the fact that such a letter exists. Accordingly, it seems that any systematic analysis of such pragmatic inferences will presuppose an adequate treatment of consequence. Palmer's first example is also misleading since he would seem to be suggesting that the result of hitting something should be that it falls down. 'Hit', however, is a tricky verb and only in particular contexts does it have the 'inceptive force' (cf. below) to enable it to enter into a relation of consequence. Otherwise, such inclusive tense sentences with 'hit' must be interpreted existentially.

As a further example, we may consider McCawley's (1971b: 108) remarks: "However, ... I am at a total loss to find a detailed analysis which would correctly explain what effect the sentence refers to, for example, why it is that (55) refers to the effect of John's not being here (not, as is often erroneously supposed, the effect of John's being at the office), (56) to the effect of my wife's being in jail, (57) to the effect of my being sick with the flu, and (58) to the effect of your being in a position to inform me regarding the whereabouts of my slippers.

(55) John has gone to the office
(56) The police have arrested my wife, so we can't come to your party
(57) I've caught the flu
(58) Have you seen my slippers?

The oddity (noted by Leech) of Yes, six months ago as an answer to (58) comes from the answer assuming an existential interpretation of a present perfect that would normally be intended as stative."

(This footnote continued on next page)

One exception to this trend, however, is Leech (1969). He has attempted to delineate the class of propositions which participate in this relation of consequence and has proposed a semantic analysis for inclusive-tense sentences expressing propositions belonging to this class. In particular, he explicitly relates the resultative use of the inclusive tense to 'event predications' (cf. § 6.3.4.3) which have "an obvious inceptive force". His analysis involves the downgrading of the inceptive structure and a present tense structure within the medial cluster of the state predication representing the 'result' (cf. fn. 1, p. 28 for a characterization of downgrading). For example, the representation in 109. is given for sentence 108. below (cf. Leech, 1969: 158-9). This

108. Fred has acquired some golf clubs

109. (f". → h ⟨ θ'. ←ι-PLUR θ"⟩ ⟨ θ' . [-COU]→TIM.θ +THIS -PERI⟩.g)'

However, we would claim that the 'effects referred to' by (55) to (57)--i.e. John's being at the office (and hence, by further implication, not here), my wife's being in jail (or, less strongly, under arrest), and my having the flu (and hence, by implication, my being sick) are logical consequences of the described situations which, because of the use of the non-past inclusive tense, are understood as being in force at t_o and that these interpretations can, in principle, be given a systematic explanation. As for (58), the oddity referred to by McCawley derives not from assuming an existential interpretation rather than a resultative one--we would maintain that I have seen your slippers cannot sustain a resultative interpretation--but rather from misjudging the intended extension of the extended present implicit in the use of the inclusive tense (cf. 91. above). That is, it results from interpreting (58) as asking have you ever ("in your lifetime") rather than have you recently ("in a short period of time around t_o"). The effect referred to--i.e. the addressee in (58) being in a position to inform the speaker regarding the whereabouts of his slippers--will, in this case, be a pragmatic inference from the fact or the speaker's expectation that an occasion exists in the recent past on which the addressee saw the slippers and that, hopefully, he remembers where.

structure can be glossed, as literally as possible, in the following manner: (Fred (f") have (→h), he (θ") coming to be (← τ -PLUR) so (θ') and this (θ') being (true) now ([-COU] → TIM.θ +THIS -PERI), some golf clubs (g"))'. More freely, the gloss is "Fred having some golf clubs both comes to be and is presently the case".

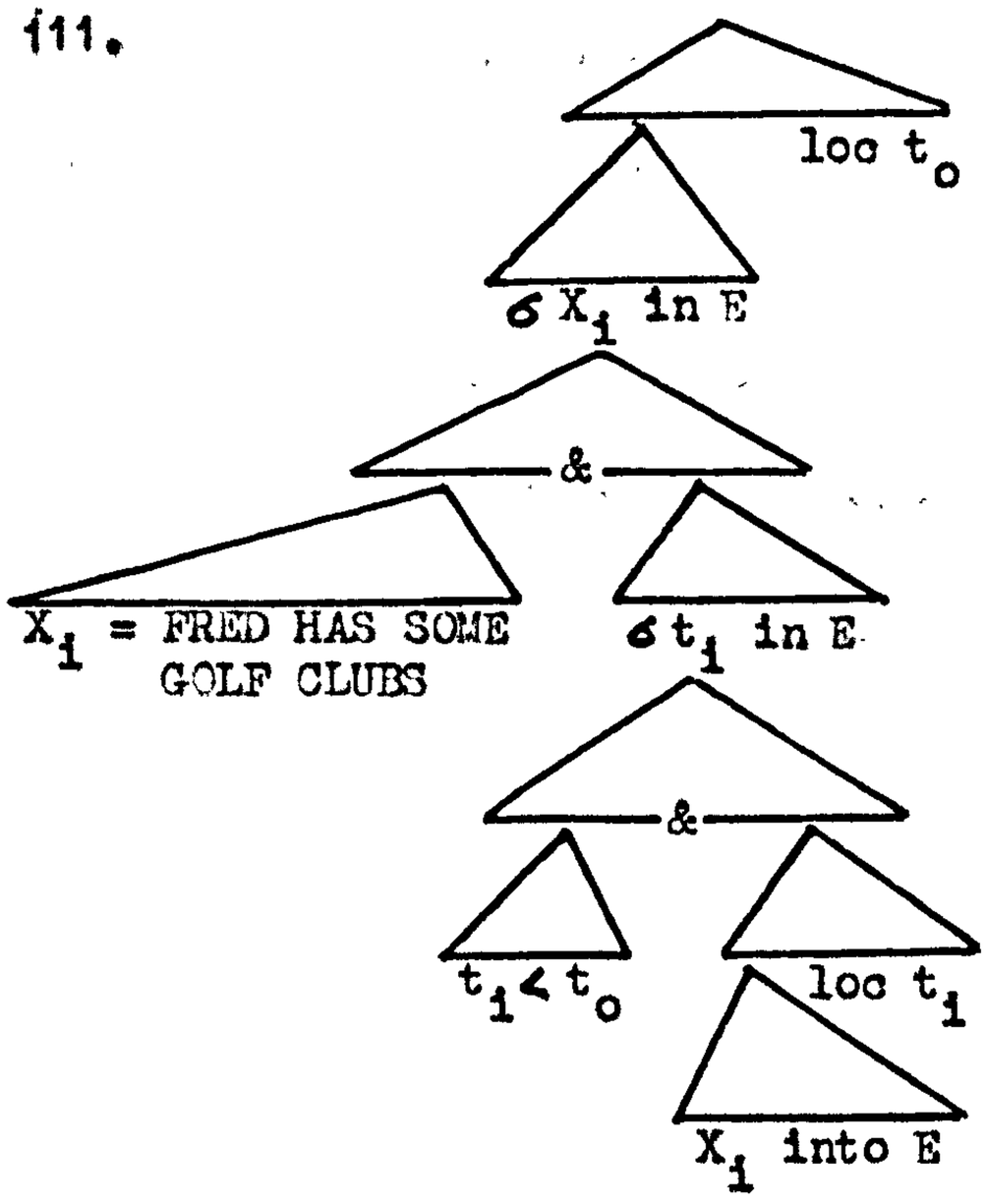
We feel that Leech is on the right track here but that his postulated semantic representation is deficient to the extent that the dual time reference which we would like to associate uniformly with the presence of the inclusive tense is not represented although it is necessary semantically. As a result, Leech must postulate a special rule of implication to ensure that the coming-to-be (cf. the first downgraded predication in 109.) takes place before t_o. Furthermore, no provision is made for the inclusion of a structure corresponding to such adverbials as 'since...', 'during the past...', as would be required for the semantic representation of a sentence such as 110. Accordingly, we suggest that, in very rough

110. Fred has acquired a new putter since you last played golf with him

terms, the resultative interpretation of the (non-past) inclusive tense can be schematically characterized as "A state which came to be is". "A state" will be further specified according to the situation being described, which will be a journey of some kind since only this kind of situation is terminated by (as in an extended journey) or consists solely in (as in a border-crossing) an inceptive event. The semantic configuration represented by the

non-past tense form <u>is</u> above that represented by the past tense form <u>came</u> in the above characterization will condition the insertion of 'have' (cf. fn. 1, p.547 and fn. 1, p. 553). More precisely then, the semantic structure we would propose for sentence 108. is that in 111. This can be glossed as "At present Fred is in a state of

111.



having some golf clubs which (i.e. the state of having some golf clubs) came into existence at some time previous to now". Such adverbials as 'since you last played golf with him' (cf. 110.) would presumably have their semantic source in a predication superordinate to $\underline{\sigma t_i \text{ in } E}$ specifying the domain of the quantifier in a manner analogous to that in the existential interpretation

represented in 85.[1]

Such a structure as 111. allows the implication in 112. to be read off in a straightforward manner and hence enables us to account

112. Fred has some golf clubs

directly for the relation of consequence. Furthermore, although we have not pursued the details of an explicit formulation of the relationship, it should be relatively straightforward to derive an existential interpretation from the same resultative structure--i.e. to account for the fact that 108. implies an affirmative answer to the question in 113. Schematically, this relationship

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[1] Such a source for these adverbials--i.e. as a configuration subordinate to rather than superordinate to the major (and tensed) predication--would perhaps account for the fact that they do not occur very frequently with the resultative use of the inclusive tense and when they do a certain amount of awkwardness is felt. It is as if a tension is set up between interpreting the sentence resultatively (because of the inceptive force of the proposition being expressed) and interpreting the sentence existentially (because of the domain-specifying adverbial). This becomes clear in the following sentences:

1. Mary has fallen asleep { *but she's awake (again) now / *and she's still asleep }

2. Mary has fallen asleep since you last looked in { but she's awake (again) now / and she's still asleep }

It may be, in fact, that the resultative interpretation requires the absence of such adverbials; and such sentences as 110. and 2. above are simply existential but compatible with the consequent of a resultative interpretation. We have not been able to resolve this problem.

8.3 'Still', 'yet', 'already', ~~'anymore'~~ and 'any longer'

8.3.1 Preliminary remarks

The set of adverbs comprised by 'still', 'yet', 'already' and 'anymore' (or 'any longer') constitutes a very cohesive and interesting semantic subsystem of English, and it will be the programme for this section to investigate the semantic structure of these expressions. It will be found in the course of the discussion that analyses solely in terms of 'suppletion' or of 'shared presuppositions' are neither adequate nor altogether appropriate for the semantic description of this set of adverbs. However, attempts to establish a semantic link with inclusive tense and, in particular, to relate both to the presence of a dual time reference, will be given support; but the exact nature of the relationship will turn out to be somewhat different than suggested in previous work by others. Moreover, all the previous analyses to be referred to below suffer from the lack of an explicit formulation integrated or integratable within a coherent syntactic and semantic description of the language.[1] The concern here will be mainly with the semantic level; and the descriptive framework elaborated above will be found to accommodate easily and insightfully an alternative analysis of these adverbs which, it is felt, displays more accurately their semantic content and allows a more explicit formulation of the semantic relations holding between them. However, the semantic representations proposed here are not without syntactic plausibility and can be related in a relatively

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[1] The one excpption to this is Doherty's (1973) study of the semantically and syntactically similar set of German adverbials 'noch' and 'schon'.

straightforward manner to the underlying representations of the type motivated syntactically in the various studies by Anderson listed in the bibliography. In particular, reference may be made to Anderson & Jessen (1973; forthcoming) for a syntactic description of much of what is discussed or presupposed below. The basic elements, then, of the adopted framework are those of the classification of proposition types, the existential-locative analysis of aspect and aktionsarten, the operation of quantification over times, and the preceding analysis of inclusive tense.

8.3.2 Previous approaches

Before proceeding with the investigation of our set of adverbs within the present framework, it may be helpful at this point to briefly survey the general features of the other approaches alluded to above.

The most explicit account in terms of suppletion (cf. § 5.2.4) is that given by Traugott & Waterhouse (1969) for the adverbs 'already' and 'yet': 'already' is said to be replaced by 'yet' when it is within the scope of a negative element in the same way as 'some' is replaced by 'any', the paradigm case. For example, consider the sets of sentences in 114. and 115. below. (114.c. is unacceptable without emphatic stress on hasn't or on already--see below). Under such an analysis, the two members of the suppletive

114. a. He has gone already

b. *He has gone yet

c. *He hasn't gone already

d. He hasn't gone yet

115. a. He has some apples

b. *He has any apples

c. *He hasn't some apples

d. He hasn't any apples

set are assumed to have ultimately the same underlying structure.

Traugott & Waterhouse argue that semantically 'already'/'yet', as well as 'still', are aspectual rather than temporal adverbs. In particular, 'already' is claimed to be associated with the deep-structure aspectual element PERFECT (semantically interpreted as "completed initiation of action or state" and realized alternatively as inclusive tense); and 'still', it is suggested, may be similarly associated with a deep-structure feature PROGRESSIVE (semantically interpreted as "continuing to be" and realized alternatively, one is to suppose, as the progressive form). The classification of 'already' and 'still' as aspectual adverbs, therefore, seems to rest on their being associated with the same semantic correlates as those of inclusive tense and the progressive form, respectively, which latter are assumed to realize aspectual rather than temporal notions (cf. their semantic characterizations given above). However, Traugott & Waterhouse (1969: 298) caution that "[PERFECT] is realized as <u>have</u> -<u>en</u>, but not all <u>have</u> -<u>en</u>'s have this origin, nor is PERFECT always realized as <u>have</u> -<u>en</u>, as is indicated by the interpretation of (28) [<u>John already floats</u>] as <u>It has come about that John can float, John has learned to float</u>". And later, in their conclusion (p. 302), they suggest that "<u>already</u> should be specified as the realization of a feature or set of features

associated with PERFECT" but then point out that "until more is known about PERFECT, it is not clear whether already is freely available in all sentences with deep structure PERFECT, nor exactly what features are required to generate have -en in the one instance and already in the other. Details of formalization must await a study of the whole aspectual system."

However, having looked in some detail at the aspectual system of English in Chapter 7 and at 'have -en' in the preceding section, we are now in a position to see that the "set of features associated with PERFECT" which Traugott & Waterhouse have in mind here is the configuration we have associated with the resultative interpretation of inclusive tense (cf. the inceptive feature in their characterization above). It is only this use of inclusive tense, we argued, which could justifiably be maintained to be 'aspectual' rather than or as well as 'temporal', insofar as only it has idiosyncratic aspectual implications: the logical consequence of a sentence in the *non*-past inclusive tense (interpreted resultatively) is one expressing the existence (at t_0) of the state whose bringing into existence is the essence of the situation described by the sentence. Taking the term 'aspectual' in its broad interpretation (cf. § 6.4) as applying to elements of semantic structure having to do with existential location or change of existential location, either internal or external to the proposition being expressed, the relation of consequence is seen to be squarely within the class of aspectual phenomena. Now, to the extent that there does exist an intimate tie between the resultative--i.e. aspectual--use of 'have -en' and 'already' (and, as we shall see, the other adverbials in our set),

we are in agreement with Traugott & Waterhouse. However, we see the relationship as somewhat more complex than they envisage it. Furthermore, in the case of 'still', we will find that an association of it with some such element as PROGRESSIVE is misleading, its relationship to progressive aspect being simply an implicational one.

Horn's (1970) study of these adverbs and Doherty's (1973) analysis of the corresponding set of German adverbs ('schon'/'noch (nicht)', 'noch'/'(nicht) mehr') involve a presuppositional approachwhereby a sentence with 'already' is said to have the same presupposition as the corresponding negative sentence with 'yet', and similarly for 'still' and 'anymore'. The two sentences, however, will differ in their assertions, one asserting the contradictory of what the other asserts. For example, 116.a. and 116.b.

116. a. It is still raining

b. It isn't raining anymore

c. It was raining earlier

d. It is raining now

e. It isn't raining now

below are analyzed as each having the presupposition 116.c. and as asserting 116.d. and 116.e., respectively. Carrying over such an analysis to 'already' and 'yet',[1] both 117. a. and 117.b. would be

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[1] Horn (1970: 321) gives 1. below as the common presupposition of 117.a. and 117.b., but he would appear to be confusing presupposition

1. It will be raining sometime later

with what might be called 'expectation' (cf. Leech, 1974: 318-23). We have, instead, followed Doherty's (1973) formulation.

117. a. It is already raining

b. It isn't raining yet

c. It wasn't raining earlier

d. It is raining now

e. It isn't raining now

analyzed as sharing 117.a. as their presupposition and as asserting 117.d. and 117.e., respectively. What a presuppositional approach such as this adds to a suppletive one is (1) the fact that the negative element which conditions the suppletion from 'still' to 'yet' and from 'already' to 'anymore' has a semantic effect only on part of the semantic structure of 'still' and 'already' and (2) the fact that the two pairs are related to each other insofar as the 'positive' members of the two pairs share the same (positive) assertion and the 'negative' members of the two pairs share the same (negative) assertion.[1]

Separating out presupposed and asserted material in this way is, therefore, a useful procedure and a step towards determining what kind of information must be incorporated in the semantic representation of a particular sentence, just as the relation of consequence, for example, indicated that the semantic representation of particular inclusive-tense sentences must have certain properties.

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[1] Cf. Doherty (1973: 154): "The lexicalization of negated schon by noch nicht points to some interior relationship between schon and noch. Distinguishing assertions and presuppositions of the meaning of a word by calling presupposition the part of its meaning which remains the same under negation, one can say that the difference between the sentences with noch and schon is due to a difference in their presuppositions."

However,presuppositional analyses, in general, have avoided the question of how to give a principled account for the existence of presuppositions: proposed 'semantic analyses' have usually not gone much further than presenting a simple pairing of a 'logical form' (i.e. a semantic representation of what a sentence asserts) with a semantic representation of its presupposition(s) (cf. Lakoff, 1971b). This is, in fact, the final form in which both Horn's (1970) and Doherty's (1973) analyses are given.[1] However, what should be sought are principles or rules by which the presuppositions of a particular (type of) sentence can be predicted from the form and content of its semantic representation (where this latter is not, of course, simply a pairing as mentioned above). That is, given an adequately rich but motivated semantic representation of a sentence, it should be possible to derive its presuppositions by general rule in much the same fashion as its implications are derived.[2] Although we have not been able in this study to pursue

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[1] In addition to this general inadequacy of a presuppositional approach, Horn's (1970) and Doherty's (1973) analyses encounter difficulties of a more particular nature when confronted with the deviant sentences below:

1. *Mary is not yet a virgin
2. *Peter ist noch alt
3. *Peter ist schon jung

Doherty, for example, is forced to the unappealing conclusion that 'nooh' (and 'nicht mehr') presupposes not only that at a prior time the described situation was in effect but also that at a later time it is <u>not</u> in effect, and the reverse for 'schon' (and 'noch nicht'). Horn, as we shall see (cf. §8.3.2) proposes an equally unconvincing solution.

[2] Cf. Leech, 1974, for some concrete and interesting proposals in this direction. Cf. also Keenan, 1972.

the formulation of such rules, our aim throughout has been to motivate semantic representations which are as comprehensive as possible, containing as much information as is relevant and necessary to an account of the semantic properties of the sentences they represent, among which will be the relation of presupposed information to the meaning of the sentence as a whole.

Let us now turn to yet another approach to the semantic analysis of this set of adverbs. Morrissey's (1973) analysis of 'still' and 'anymore' has elements in common with both that of Traugott & Waterhouse (1969) and a presuppositional approach although he does not invoke the latter notion in his discussion. Morrissey begins by demonstrating that 'still' and 'anymore' are akin to inclusive tense in serving "to establish a secondary time of reference, in addition to the primary one, but also, because of this, ... /to/ ... make it possible for the predication of the verb to be seen in terms of its 'truth value', with respect to either of these times" (Morrissey, 1973: 67). Thus, sentence 118.a. below is analyzed as

118. a. John is still singing

b. John isn't singing anymore

indicating that at the primary point of reference (the present) it is true that John is singing and at the secondary point of reference (sometime in the past) it is also true that John is singing. On the other hand, 118.b. is claimed to mean that at the present John isn't singing and that before (i.e., at some time in the past) he was. As in Horn's analysis (cf. sentences 116.a. to 116.e. above), two temporal references are explicitly involved in such a

formulation.

However, Morrissey incorporates a further element into his analysis, that of the distribution of new information (as discussed in Chafe, 1970), in order to distinguish between inclusive tense and 'still'/'anymore', particularly in relation to such sentences as 119.a. to 119.c. below. The problem is to account for the

119. a. John has been singing

b. John is still singing

c. John is not singing anymore

fact that 119.a. can be inserted either in a context where 119.b. is also true or in a context where 119.c. is true (and these two contexts are, of course, not compatible, onewith the other). Morrissey (1973: 69) concludes that "the difference between the perfective, whether it is ambiguous out of context or not, and still/anymore, is that the former means that the information concerning the situation obtaining at the secondary time of reference is vital, or 'new', to the communication, whereas the adverbial forms mean that the situation at the primary time of reference is more important". However, once one begins to invoke notions such as new or vital information versus old or contextually self-evident information in a sentence, it becomes difficult to determine whether this is distinguishable, at the level of discourse, from what is asserted versus what is presupposed by a given sentence. Indeed, for a sentence to be inserted appropriately into a linguistic context, what comes before, i.e., the old information, must not be

in conflict with the presuppositions of the sentence.[1] We have here a meeting of logical and pragmatic presupposition.[2] It is quite likely that the way in which information is organized in a semantic representation--i.e. so as to reflect such distinctions as 'given' and 'new'--will be directly relevant to the formulation of such principles for deriving presuppositions as were alluded to above.[3]

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[1] Cf. Ducrot (1968: 40-41): "Lorsqu'un énoncé comporte des présupposés, il déploie ainsi, entre les interlocuteurs, un monde de représentations considérées come évidentes. Il institue un univers intellectuel dont il fait la toile de fond du dialogue. Les présuppositions d'une phrase sont comme une sorte de contexte, non pas extérieur, mais immanent, que l'énoncé apporte en même temps que ses informations proprement dites." Elsewhere (Ducrot, 1969: 35-36): "Pour décrire ce statut particulier du présupposé, on pourrait dire qu'il est présente comme une evidence, comme un cadre incontestable où la conversation doit nécessairement, s'incrire, comme un élément de l'univers du discours...le posé se présente comme simultané à l'acte de communication, comme apparaissant pour la première fois, dans l'univers du discours, au moment de cet acte...quant au presupposé...il essaie toujours de se situer dans un passé de la connaissance, éventuellement fictif, auquel le locuteur fait semblant de se référer."

[2] Cf. Keenan (1971: 45-9): "A sentence S logically presupposes a sentence S' just in case S logically implies S' and the negation of S, ~S, also logically implies S'" and "An utterance of a sentence pragmatically presupposes that its context is appropriate".

[3] For example, Leech (1974) would like to associate the presuppositions of a sentence with the downgraded configurations in its semantic representation. However, structures with downgraded predications can be 'reorganized', by a formal rule of semantic equivalence, into structures in which the downgraded predication becomes the matrix predication and the former matrix predication a rank-shifted predication (cf. Leech, 1969: §4.3.3; Leech, 1974: 265-8). The semantic representation organized in terms of rank-shifting will not yield the same presuppositions. Cf. also our discussion of structures 6. and 8. in §8.2.1.

8.3.3 Co-occurrence potential

With the observations and proposals of these previous studies in mind, let us proceed to a fresh and detailed investigation of the major semantic properties of these two pairs of adverbs, beginning with the more obvious co-occurrence restrictions and possibilities. It should be noted at the outset that our concern is only with the purely temporal uses of these adverbs,[1] but it would be hoped that a more comprehensive investigation would uncover elements of semantic structure common to both the temporal and non-temporal uses.[2]

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[1] Cf. Traugott & Waterhouse (1969: fn. pg. 288) for other uses of 'already', 'yet' and 'still'. In our investigation we will not find it necessary or desirable to distinguish between 'already$_1$' (PERFECTIVE) and 'already$_2$' (= 'as early as now/then', 'so soon, 'right now/then'). '(Not) anymore', but not 'any longer', has a more fundamental use for quantifying over things or substances, rather than over times: I haven't got anymore money/apples.

[2] For example, the temporal and the non-temporal uses of '(not) anymore' are surely related. Furthermore, the non-temporal uses of 'already' and '(not) yet' (if they are indeed non-temporal) in such sentences as 1. and 2. below (from Traugott & Waterhouse,

1. Already 50% of the votes had been cast
2. Not yet 50% of the votes had been cast

1969) may possibly be related to the quantifier expressions 'as many as' and 'less than' in much the same way as non-temporal 'always', 'sometimes', 'usually', etc., as in sentence 3. below, are related to 'all', 'some', 'most', etc., as in sentence 4.-- cf. Anderson & Jessen, 1973). Doherty (1973) also discusses the relationship between temporal and non-temporal uses of 'noch'.

3. Welshmen are {always / sometimes / usually} tall

4. {All / Some / Most} Welshmen are tall

8.3.3.1 Tense, aspect and proposition type

If we disregard, for the moment, the role of negation (in particular, the distribution of 'not'), then a very general pattern emerges as regards the co-occurrence potential of 'still', 'yet', 'already' and 'anymore'/'any longer'/'(no) longer' with respect to tense, aspect and proposition type. The following sets of sentences illustrate the generalizations to be made:

120.a. i. Dick is {already / not yet} {in London / eating his dinner}

ii. Dick was {already / not yet} {in London / eating his dinner} (when I called)

iii. Dick will {already / not yet} be {in London / eating his dinner}

(when you call)

b. i. Mary {already sews / does not yet sew} her own dresses

ii. Mary {already sewed / did not yet sew} her own dresses (at the age of twelve)

iii. Mary will {already / not yet} sew her own dresses (when she enters high school)

121.a. i. Dick is {still / no longer} {in London / eating his dinner}

ii. Dick was {still / no longer} {in London / eating his dinner} (when I called)

iii. Dick will {still / no longer} be {in London / eating his dinner}

(when you call)

b. i. Mary {still / no longer} sews her own dresses

ii. Mary {still / no longer} sewed her own dresses (when last I saw her)

iii. Mary will {still / no longer} sew her own dresses (once she is married)

122. i. Fred has {already / not yet} {fallen asleep / fallen asleep during a lecture[1] / been asleep for three hours}

ii. Fred had {already / not yet} {fallen asleep (when the phone rang) / fallen asleep during a lecture (when I first met him) / been asleep for three hours (when the phone rang)}

iii. Fred will {already / not yet} have {fallen asleep (when you call) / fallen asleep during a lecture (when you meet him) / been asleep for three hours (when you call)}

123. i. Fred has {still / no longer} not {fallen asleep / fallen asleep during a lecture / been asleep for three hours}

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[1] The existential interpretation becomes clearer in the context of 'yet' if the underlying existential (cf. 'ever') is realized in combination with the negative element as 'never'--cf. 1. below.

1. Fred has never yet fallen asleep during a lecture

A similar observation can be made with respect to the examples in 123. containing 'still' and 'no longer', only here it is the second negative (in the case of 'no longer') which incorporates the existential element--cf. 2 below. The role of this negative

2. Fred has {still / no longer} never fallen asleep during a lecture

following 'still' and 'no longer' will be investigated in the following section.

ii. Fred had {still / no longer} not {fallen asleep (when I called) / fallen asleep during a lecture (after Smith's first class) / been asleep for three hours (when I called)}

iii. Fred will {still / no longer} have not {fallen asleep when you call / fallen asleep during a lecture (after Smith's first class) / been asleep for three hours (when you call)}

124. a. *Dick {already signed / did not yet sign} the contract (when I phoned him this afternoon)[1]

b. *Dick {still / no longer} {didn't sign / signed} the contract (when I phoned him this afternoon)[2]

First of all, we find that the situation described by a sentence containing any one of these adverbs may be temporally located in the past, in the present, or in the future (cf. i., ii. and iii. in each of 120.a./b., 121.a./b., 122. and 123.). That is, there are, in general, no restrictions on their co-occurrence with past or non-past tense forms nor with such modal auxiliaries as 'will'. However, past and future contexts must contain, implicitly or explicitly, a reference to a past or future primary temporal

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[1] Such sentences as 124.a. and 124.b. are marginally acceptable if Dick's signing the contract is construed as a repeatable event--e.g. in the context of a play which has more than one performance--but then they fall within the same class of sentences as 120.b. It is the more plausible, single-event interpretation which we have regarded as being unacceptable here.

[2] We have included both a negative and non-negative variant here so as to preclude the possibility that the unacceptability of 124. derives from the absence of a negative element (cf. §8.3.3.2).

reference point, respectively. In other words, a point of time which functions as a 'present' (a $\underline{t}_o$) in the past or in the future must be contextually established (cf. also Morrissey, 1973). This requirement is identical to that for the use of inclusive tense in past and future (modal) contexts--cf. 120.a.i. and ii. with 125.a. and b. below. This shared contextual requirement will be found

125. a. Dick had arrived in London (when I called)

b. Dick will have arrived in London (when you call)

to be predictable from our analysis of these adverbs.

Secondly, each of 'already', 'yet', 'still' and '(no) longer' may occur in both inclusive and non-inclusive tense sentences (cf. 120./121. with 122./123.). However, here considerations of aspect and proposition type (and, as we shall make explicit in the next section, negation) enter in. In the case of sentences lacking inclusive tense (cf. 120./121.), the situation described by the sentence must be a locational relation of some kind or else be viewed in progressive aspect. The locational relation may be simplex (e.g. Dick being in London) or one constituted by the regular repetition of a bounded process (e.g. Mary making her own dresses). As we have seen in § 8.2.1 these three structures--simple states, bounded processes in progressive aspect and such complex 'habituals'--share the property of being point-wise continuously projectable onto the temporal axis, which property we have assumed to be associated in their propositional representation with their highermost existential predication being <u>in E</u> rather than some other existential configuration. And it is this which enables

them to be located at a point in time and, in particular, at t_o. If we now turn our attention to the class of non-inclusive tense sentences which do not accept any of our set of adverbs--i.e. those describing bounded processes not viewed in progressive aspect (cf. 124.)--we find that this set is precisely that which can <u>not</u> be located at t_o, even if it is a minimal and ideal border-crossing (cf. § 8.2.1). In a non-past sentence such as 126. (under a single-event and non-future-as-scheduled reading), it could plausibly be

126. *Dick {already signs / does not yet sign} the contract

argued that the adverbial plays no role in its unacceptability since, even in its absence, the sentence is somewhat dubious--cf. 127. This is because a stylistically marked context must be

127. ?*Dick signs the contract

invoked--e.g. on the spot, minute by minute commentary--in order to assign it an acceptable interpretation as involving the temporal projection of the entire event onto t_o. However, in the past tense (and also in modal/future) contexts, this is not necessary: the absence of the adverbials in 124. renders the sentences acceptable--cf., for example, 128. The interpretation is simply

128. Dick signed the contract when I phoned him

that the signing of the contract took place simultaneously with my phone call or, more likely, just following the phone call ('when'/'then' being ambivalent in this respect but tending to favour an "and then" interpretation). Hence, the adverbials in 124. make a definite contribution to the unacceptability of the sentences, and

this can be related in a relatively straightforward fashion to the fact noted above that they involve, in conjunction here with the past tense, a contextually established primary temporal reference point in the past. This point displays the same temporal properties as t_o as regards what kinds of situations can be projected onto it. Accordingly, the past tense sentence which would partially correspond to 127. above and which is unacceptable for thesame reason as 124.a. is that in 129. Still more pertinent is the fact that the

129. ?* {When I phoned him / At the time of my phoning him}, it was the case that Dick signed the contract

(cf. At the time of my phoning him, it happened that Dick signed the contract)

same restriction occurs in the case of the resultative use of the inclusive tense in sentences explicitly describing the coming to be (or the ceasing to be) of a situation--cf. 130.a. and b. This restriction again follows naturally from the semantic representation

130. a. ?*It has come to be that Dick signed the contract

b. ?*It has ceased to be that Dick didn't sign the contract

we have postulated for the resultative interpretation: it involves loc t_o as the most superordinate predication and hence only in E can come immediately below it. As we shall see, 130.a. and b. are closely related to 124.a. and b.

Finally, we observe that if the sentence containing any of our set of adverbials is in the inclusive tense, then there are apparently no restrictions on the proposition type, this being

reflected by the fact that resultative, existential and universal interpretations are possible (cf. 122./123.).

8.3.3.2 Negation

We were careful in the preceding section to insert and omit negative elements where necessary so that this factor would not interfere with or obscure the contextual roles of tense, aspect and proposition type. We must now reverse the procedure in order to determine what restrictions there are on the distribution of 'not'. We can begin by examining the alleged suppletive patterns, with respect to 'already', 'yet', 'still' and 'any longer'/'anymore', displayed by two types of sentences--ones describing a simple locational relation in the non-past, non-inclusive tense and ones describing an inceptive border-crossing in the non-past inclusive tense. Consider, then, the following sentences:

131. a.i. Samantha is already asleep

ii. *Samantha isn't already asleep

b.i. Samantha has already fallen asleep

ii. *Samantha hasn't already fallen asleep

132. a.i. *Samantha is yet asleep/asleep yet

ii. Samantha isn't yet asleep

b.i. *Samantha has yet fallen asleep/fallen asleep yet

ii. Samantha hasn't yet fallen asleep

133. a.i. Samantha is still asleep

ii. *Samantha isn't still asleep

b.i. *Samantha has still fallen asleep ('still'≠'nevertheless')

ii. *Samantha hasn't still fallen asleep

134. a.i. *Samantha is asleep any longer

ii. Samantha { isn't asleep any longer / is no longer asleep }

b.i. *Samantha has fallen asleep any longer

ii. *Samantha { hasn't fallen asleep any longer / has no longer fallen asleep }

Assuming 'already'/'yet' and 'still'/'any longer' are suppletive pairs, we would expect 131./132. and 133./134. to display the same pattern as 135./136. below. However, what immediately strikes the

135. a.i. Samantha has some money

ii. *Samantha { hasn't / doesn't have } some money

b.i. Samantha has made some money at the races

ii. *Samantha hasn't made some money at the races

136. a.i. *Samantha has any money

ii. Samantha { hasn't / doesn't have } any money

b.i. *Samantha has made any money at the races

ii. Samantha hasn't made any money at the races

eye is the unacceptability of the non-negated sentence 133.b.i. and of the negated sentence 134.b.ii. This destroys the suppletive pattern for 'still'/'any longer' (for inclusive tense sentences). In the case of 'already'/'yet', the suppletive pattern is consistent throughout. Furthermore, whereas 131.b.ii. and 135.b.ii. become acceptable if the negative element is stressed, causing the sentences to be interpreted as denials of 131.b.i. and 135.b.i., respectively, this is not the case with 133.b.ii. Again, this discrepancy pertains only to the inclusive tense sentences: all of 131.a.ii., 133.a.ii. and 135.a.ii. are rendered acceptable if the negative is

stressed. These anomalies can be explained--and a suppletive analysis rescued--if we look at the interaction of negation in other constituents of the sentence. However, a suppletive analysis, even if feasible, does not take us very far in explicating the internal structure of this set of adverbials: it merely treats the members of each pair as contextual variants, as having the same underlying structure, but does not say anything about the nature of that structure. Accordingly, although we shall have occasion to refer to it again, we shall not adopt such an approach as the basis of our investigation.

Let us now see what happens in inclusive tense sentences when we ensure that 'already' and 'still' are not in the scope of a negative and that 'yet' and 'any longer' are (i.e. that the requirements of a suppletive analysis are satisfied) but focus instead on the effect of inserting a negative within the scope of the adverbial, such that the basic proposition expressed by the sentence is a negative rather than a positive one. Compare the following sentences in this light:

137. a. Samantha has already {fallen asleep / been asleep for three hours}

b. *Samantha has already not {fallen asleep / been asleep for three hours}

138. a. Samantha has not yet {fallen asleep / been asleep for three hours}

b. *Samantha has not yet not {fallen asleep / been asleep for three hours}

139. a. *Samantha has still {fallen asleep / been asleep for three hours}

b. Samantha has still not {fallen asleep / been asleep for three hours}

140. a. *Samantha has no longer {fallen asleep / been asleep for three hours

b. Samantha has no longer not {fallen asleep / been asleep for three hours

What semantic fact emerges from these sentences is that 'already' and '(not) yet' pattern alike in that neither of them can occur in inclusive tense sentences in which the proposition expressed is negated. Similarly, 'still' and '(no) longer' share the property of not occurring in inclusive tense sentences expressing a positive proposition. The basis for these restrictions is, as will be shown below, of a semantic or logical nature rather than being purely syntactic as, it might be argued, is the phenomenon of suppletion. In intuitive terms 137.b., 138.b., 139.a. and 140.a. are all anomalous because each implies the possibility of obliterating events from the past, of undoing or cancelling past happenings. The fact that we operate with or are aware of a basic axiom to the effect that such a possibility does not exist, is reflected in such everyday maxims as What's done is done, No use crying over spilt milk, You can't change the past.

Having isolated this semantic restriction, we can now see that the unacceptability of 133.b.ii. and 134.b.ii. (=139.a. and 140.a., respectively) has to do with a violation of this restriction and not with a faulty suppletive pattern. If we now substitute throughout 133.b. and 134.b. the compatible negated predicate 'not fall asleep' for the incompatible non-negated one 'fall asleep', the suppletive pattern is restored:

133. b.i.' Samantha has still not fallen asleep

ii.' *Samantha hasn't still not fallen asleep

134. b.i.' *Samantha has not fallen asleep any longer

(cf. *It is the case any longer that Samantha has not fallen asleep)

ii.' Samantha has no longer not fallen asleep

(cf. It is {no longer the case / not the case any longer} that Samantha has not fallen asleep)

8.3.3.3 More on proposition types

We must now consider a further set of sentences which suggests that the co-occurrence restrictions on 'already', 'yet', 'still' and 'any longer'/'anymore' formulated so far are still not fine enough. It will turn out, however, that the refinements to be made are related to the requirements uncovered in the preceding section pertaining to the negated or non-negated nature of the expressed proposition. The kind of sentences whose semantic properties we wish to investigate here are illustrated in 141. to 144. below. (The status of some of the asterisks may be questionable

141. a. i. *Mary is already a virgin

ii. Mary is already a mother

b. i. *Mary is already young

ii. Mary is already old

c. i. *The loaf of bread is already fresh

ii. The loaf of bread is already stale

d. i. *It is already early

ii. It is already late

142. a. i. *Mary is not yet a virgin

ii. Mary is not yet a mother

b. i. *Mary is not yet young

ii. Mary is not yet old

c. i. *The loaf of bread is not yet fresh

ii. The loaf of bread is not yet stale

d. i. *It is not yet early

ii. It is not yet late

143. a. i. Mary is still a virgin

ii. *Mary is still a mother

b. i. Mary is still young

ii. *Mary is still old

c. i. The loaf of bread is still fresh

ii. *The loaf of bread is still stale

d. i. It is still early

ii. *It is still late

144. a. i. Mary is no longer a virgin

ii. *Mary is no longer a mother

b. i. Mary is no longer young

ii. *Mary is no longer old

c. i. The loaf of bread is no longer fresh

ii. *The loaf of bread is no longer stale

d. i. It's no longer early

ii. *It's no longer late

if one is willing to ignore certain facts about and limitations of the actual world--i.e. if other possible worlds are also considered--but let us disregard this factor for the moment.)

Again, 'already' and '(not) yet' and 'still' and '(no) longer' pattern alike. The former pair cannot occur in a sentence

describing what might be called an 'aboriginal' locational relation--i.e. a locational relation which does not come to be but rather is to begin with (or, at least, comes into existence at the same time as the object with which it is associated comes into existence). Such states cannot be re-entered once they are left. The latter pair, on the other hand, cannot occur in sentences describing 'interminable' or 'no-exit' locational relations--i.e. locational relations which cannot cease to be but rather are until the end (i.e. until the time at which the object with which they are associated goes out of existence). Such states cannot be left once they are entered.

Horn (1970) discusses such examples as 141.a., 142.a., 143.a. and 144.a. (and points out the kinds of conditions which a possible world would have to satisfy in order that the starred sentence could be appropriately used to describe situations in such a world), but his explanation of the co-occurrence restrictions is unconvincing. What he claims is that the semantic representation of 'mother' must contain the representation of 'already'/'yet' and 'virgin' that of 'still'/'anymore'. A much more natural conclusion to be drawn from the data is that 'already' and 'yet' have to do, semantically, with the coming into existence of a locational relation and hence cannot be used in sentences describing locational relations which cannot come (back) into existence. And, similarly, 'still' and 'anymore' have to do, semantically, with the going out of existence of the locational relation described by the sentence and hence cannot be used if that locational relation is one which cannot ever go out of

existence.[1]

Before making these suggestions more explicit, let us elaborate somewhat on the differentiation of locational relations introduced above. What we will be seeking is an explanation as to why the states described by 'Mary be a virgin', 'Mary be young', 'the loaf of bread be fresh', 'it be early' are ones which can go out of existence but not come into existence and, similarly, why the reverse hold for the states described by 'Mary be a mother', 'Mary be old', 'the loaf of bread be stale', 'it be late'. We will begin with the first of these sets: 'Mary be a virgin' and 'Mary be a mother'.

Consider first a more typical locational relation such as that described by 'Mary knows the answer'--more typical in that it can be both brought into existence and taken out of existence and there exist special expressions denoting the border-crossings which issue into and out of the locational relation, namely 'learn (the answer)' and 'forget (the answer)'. The fact that it is possible to describe both inceptive and cessative border-crossings for the same locational relation and, in particular, the fact that the initial location for one is the final location for the other, and vice versa, means that these events are reversible (cf. Leech, 1969)--each, so to speak, undoes the work of the other. Hence, Mary can go into and out of

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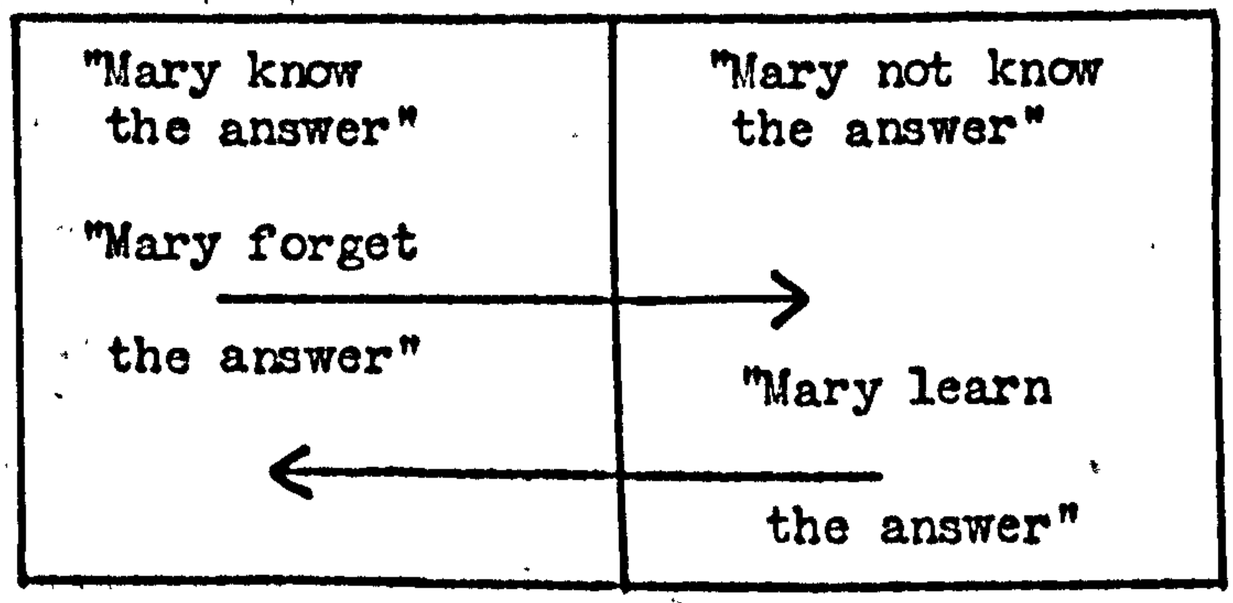
[1] Tesnière (1966: 77) recognizes the inceptive nature of 'déja' (cf. 'already') and the cessative nature of 'encore' (cf. 'still').
Traugott & Waterhouse (1969) observe that a relationship exists between 'already', inchoatives and + Polarity adjectives and between 'still' and - Polarity adjectives, but they do not go on to develop any conclusions from this as to the internal structure of 'already' and 'still'.

the state of knowing the answer an unlimited number of times (or, more accurately, the state of Mary knowing the answer can go into and out of existence an unlimited number of times), which property we can represent as in Figure I below. In other words, the state

Figure I



described by 'Mary know the answer' is repeatable. (In the case of successive inceptions of this state, other factors will determine whether the border-crossing is described as one of '(re-)learning' or one of 'remembering'--we need not concern ourselves with this refinement.)

What is central to the semantic system sketched above for 'not know' (cf. 'be ignorant of'), 'learn', 'know', and 'forget' and to many other such systems as, for example, that of 'be asleep', 'wake up', 'be awake' and 'fall asleep' is a basic locational relation which may be located in existence or in non-existence and in terms of which the journeys described by the expressions 'learn' and 'forget' and 'fall asleep' and 'wake up'[1], for example, can be

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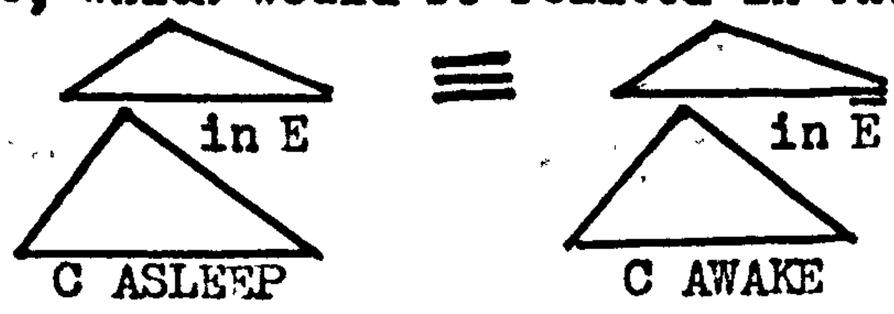
[1] In the case of 'be asleep', 'wake up', 'be awake' and 'fall asleep', one would probably wish to postulate two basic locational relations, rather than one, which would be related in the following way:



defined: 'forget something' is analyzed as "cease to know something" (cf. § 7.6.3.2 and De Rijk, 1974), 'wake up' as "come to be awake" and not the other way around (e.g. 'be awake' defined as "having woken up"). However, the situation becomes somewhat more complex with other semantic systems; and it will be useful to distinguish between expressions denoting primary or basic locational relations and those denoting secondary ones. A secondary locational relation is one that must be defined in terms of a more basic journey. For example, in addition to the interpretation of 'forget' as "cease to know", there is a stative interpretation as "have ceased to know", i.e. "have forgotten", as illustrated in 145.

145. a. I have forgotten the name of my teacher

b. I forget the name of my teacher

(This interpretation of 'forget' occurs most commonly with first person subjects.) More straightforward, perhaps, are the similar sets of expressions 'not be in (e.g., the house)'; 'go into/enter (the house)', 'be in (the house)', 'go out of (the house)' and 'be out of (the house)' and 'notbe alive', 'be borne'/'be conceived', 'be alive', 'die' and 'be dead'. The meaning of 'be out of (the house)' is arguably "have ceased to be in (the house)" and that of 'die' "have ceased to be alive" (cf. § 3.2). That is, 'forget' (in its stative interpretation), 'be out of (the house)' and 'be dead' denote secondary locational relations depending for their definition on the journeys denoted by 'forget' (in its non-stative interpretation), 'go out of (the house)' and 'die', respectively; and the definitions of these journeys depend, in turn, on the basic locational relations denoted by 'know', 'be in (the house)' and 'be

alive', respectively.

Consider now a somewhat more complex semantic system--that constituted by expressions having to do with marital status and change of marital status. We can begin with the set of expressions 'be single'/'be unmarried', 'be married', 'be the wife/husband of' and 'get married to'/'marry'/'wed'/'become joined inwedlock to'. One might wish to argue that 'be single'/'be unmarried' and 'be married' are comparable to 'not know' and 'know' or 'be asleep' and 'be awake' in denoting two basic complementary locational relations and that 'get married' is used to describe the border-crossing from that denoted by the former to that denoted by the latter. Within such a system, 'A be the wife of B' could be analyzed as "A be the woman married to B". However, there are other possibilities, all of which serve to highlight the cohesiveness and interrelatedness of the various terms in the system. For example, 'be the spouse (=wife or husband) of somebody' could be taken as denoting a basic, essentially possessive, locational relation the coming into existence of which is denoted by 'marry'. 'Be married' could then be regarded as denoting a secondary locational relation whose definition depends upon the border-crossing denoted by 'marry'. That is, 146.a. would entail as well as be entailed by 146.b. under a resultative (i.e. not existential) interpretation of the latter and similarly for 147.a. and 147.b.:

146.a. Sharon is married

b. Sharon has married (someone)

147.a. Sharon is single/unmarried

b. Sharon has not (re-) married

Compatible with this alternative would be Anderson's (1973c) suggestion (cf. § 4.2) to the effect that 'A marry B' describes an abstract journey similar in nature to the concrete journey described by 'A join/meet/come together with B'.[1] To go into this

---

[1] It is quite possible that both of the approaches mentioned above can be reconciled and that, for instance, there is no contradiction in treating 'be married' both as denoting the secondary locational relation defined in terms of the more basic border-crossing denoted by 'marry' and as denoting a primary locational relation whose inception is denoted by the more complex 'get married'. All this, of course, is not an isolated phenomenon entirely peculiar to this particular semantic system. There are many verbs, all inceptive in nature, which display the same or similar pattern--for example, 'change', 'increase', 'finish', 'write', 'tire', 'close', 'cool'. The problem is to unravel, in a non-trivial way, the synchronic semantic relationships between such sentences as 3.a., 3.b. and 3.c. The relationships become clearer when a verb with a somewhat more complete paradigm and a basic locative

3. a. John has written the letter
   b. The letter has {been written / got(ten) written}
   c. The letter is written

counterpart (e.g. 'be larger') is studied with respect to the relations of consequence into which it enters:

4.a. i. The number of linguists on the staff has increased
     ii. The number of linguists on the staff has got(ten) larger
     } ⊃
   {b. i. The number of linguists on the staff is larger
    ii. ?The number of linguists on the staff is increased

5.a. i. The number of linguists on the staff has been increased
     ii. The number of linguists on the staff has got(ten) increased
     } ⊃
   {b. i. The number of linguists on the staff is increased
    ii. The number of linguists on the staff is larger

6.a. i. The chairman has increased the number of linguists on the staff
     ii. The chairman has got(ten) the number of linguists on the staff increased
     } ⊃

Footnote continued over page

question further, however, would take us far beyond the aim of the present discussion which is merely to sketch out a semantic system illustrating the different ways in which locational relations (states) may be related to journeys (events).

Similar problems arise when we turn our attention to expressions describing the passing out of existence of the state (whether primary or secondary) of being married to someone or being the wife/husband of someone. Consider, for example, the journeys described by the sentences in 148. and the locational relations described by those

148. a. Sharon divorced Paul last year

b. Sharon got a divorce from Paul last year

c. Sharon got divorced from Paul last year

in 149. If we assume, for the sake of simplicity, that the sentences

---

{ b.i. The number of linguists on the staff is increased
ii. The number of linguists on the staff is larger

The question mark in 4.b.ii. indicates that the relationship of consequence is somewhat dubious in that it is only because of the existence of such other relations of consequence as those of 5. and especially 6. (which is explicitly agentive) that 4.b.ii. can be interpreted as following from 4.a.i./ii. This phenomenon is accentuated in cases where the antecedent describes a situation which it would be somewhat difficult or pathological to attempt to bring about:

7.a. The number of {suicides / miscarriages / cases of TB.} has increased ⊃

{ b.i. The number of {suicides / miscarriages / cases of T.B.} is larger
ii. ?The number of {suicides / miscarriages / cases of T.B.} is increased

A detailed investigation of these relationships would, however, take us too far afield, involving as they do considerations of ergativity/transitivity and voice (but cf. Lyons, 1968a: § 8.2, § 8.3; Anderson, 1971b; Halliday, 1967/68).

in 148. all describe the going or putting out of existence of the

149. a. Sharon is divorced

b. Sharon is a divoroee

locational relation brought into existence by marrying someone and that the locational relation described in 149. is a secondary one defined in terms of the having taken place of such a journey, then it will be possible to account for the fact that 149.a. and b. entail such sentences as 150., 151. and 152. below. In particular,

150. Sharon has been married (existential interpretation)

151. Sharon is the {ex-wife / former wife} of someone

152. Sharon is {single / unmarried}

it will be possible to account for the fact that '(be) divorced/a divorcee' is hyponymous with '(be) single/unmarried'. Less straightforward, perhaps, is the exit from marriage constituted by the event(s) described by 153. and the locational relation in 154.

153. a. Sharon lost her husband

b. Sharon's husband died

c. Sharon became a widow

d. Sharon was widowed

154. a. Sharon's husband is dead

b. Sharon is a widow

The secondary state described by 'be a widow' is that which comes into existence when one's husband dies (which is a border-crossing from existence to non-existence of the man to whom one is married) and which is usually considered to last until one remarries. The

fact that we can speak of a widow remarrying (cf. 155.) suggests that '(be) a widow' is also hyponymous with '(be) single/unmarried'--

155. The widow remarried within a year

154. would, in that case, also imply 152.[1] Accordingly, the various semantic relations we have been discussing so far can be summarized by means of the following figure, representing a possible sequence of states and events:

---

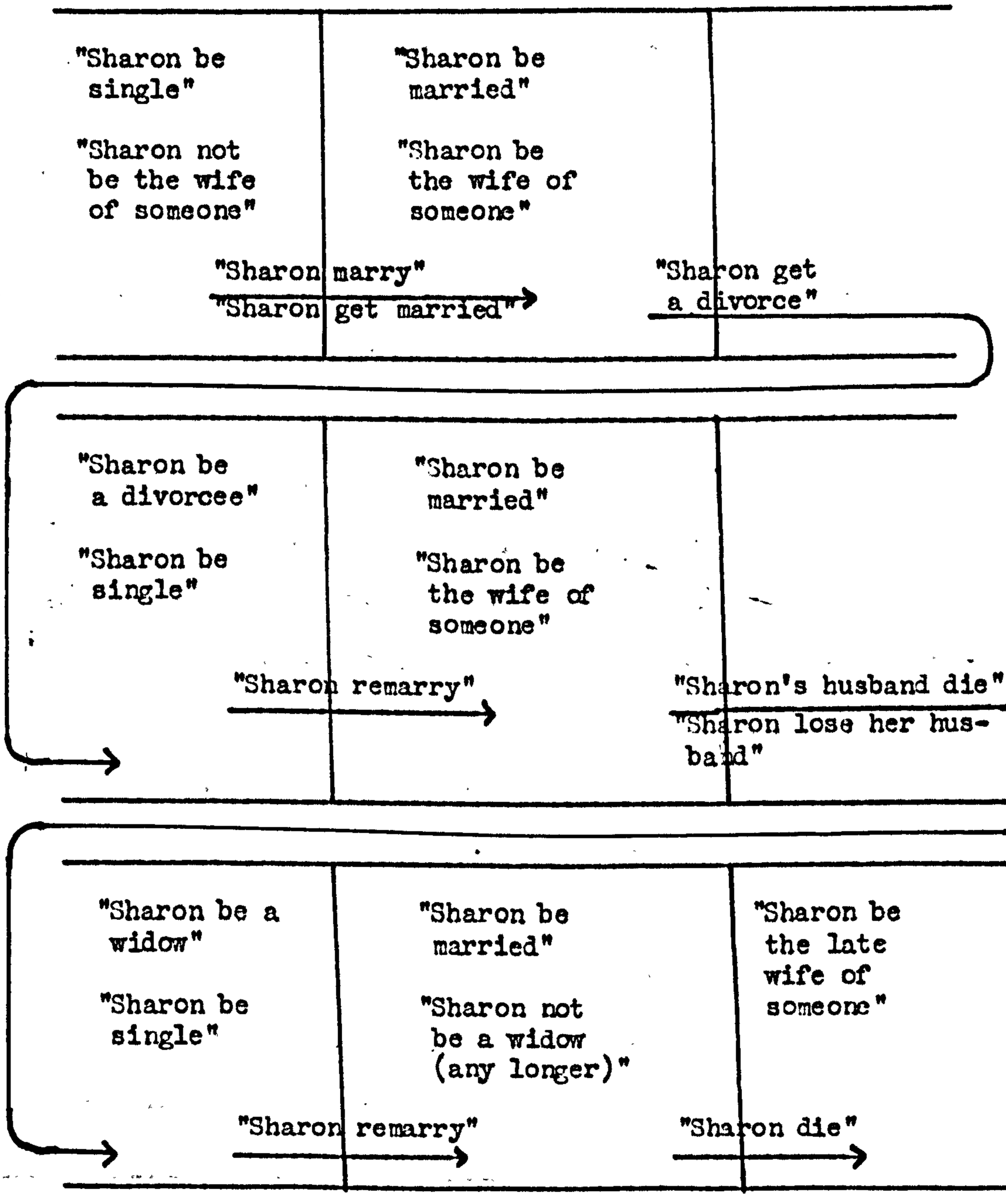
[1] However, a widow may consider herself or be considered by others to be still married or to be still the wife of her dead husband. The fact that sentences such as 1. and 2. are possible suggest

1. Sharon's husband has been dead for two years now

2. Sharon is the wife of the late Peter Woodbury

that the relation denoted by 'be the wife/husband of' can be treated linguistically as remaining in existence past the point in time at which one of the participants ceases to exist in much the same way as the inalienable kinship relations denoted by 'be the daughter/son/father/mother/brother/sister of'-- cf. Anderson, 1973e.

Figure II



The state of being single is re-enterable but after the first instance is always associated with some secondary state defined with respect to the nature of the event which causes the state of being married

to go out of existence.[1]

However, we can add yet another dimension to this same semantic system, one which is crucial to explicating the logical nature of expressions describing locational relations which cannot be re-entered once left. Whereas each and every instance of marrying someone marks the cessation of the state of being single, there is a particular instance of the same event, namely the first, which marks the cessation of an entirely different (secondary) state, that denoted by 'be a spinster'. (There is, of course, an additional factor of age involved--a young unmarried woman is not normally described as a spinster (cf. the somewhat archaic 'maiden')--but this does not affect the point at issue. The male counterpart 'be a bachelor' is perhaps less troublesome in this respect.) That is, the situation described by 'A be a spinster' is a secondary state of a special sort: not only is it (at least partially) defined in the system in terms of an event which would mark its cessation, but it also entails the never-having-happened of that event. Once the event of A getting married has occurred (i.e. for the first time), it can never again be the case that the event has never ~~never~~ happened. Accordingly, we have a state which cannot be

---

[1] There is no verb 'unmarry' similar to 'untie', 'uncork', etc. That is, the prefixed past participle 'unmarried' is not comparable to 'untied', 'uncorked', etc. but rather to such adjectives as 'unborn', 'uncharted'. The former set are derived from prefixed verbs denoting the undoing or cancelling of the action denoted by the simple, unprefixed verb whereas the latter set are derived from the past participle of a 'positive' verb ('bear', 'chart'), the prefix indicating that the event denoted by that verb has not (yet) taken place or, perhaps equivalently, that the state denoted by the past participle is not in existence.

(re-) entered once it is left, though it never need be left in the first place. From what has been said earlier, we would therefore expect 'be a spinster' (and 'be a bachelor') to behave in the same way as 'be a virgin', 'be young', 'be fresh' and 'be early' with respect to our set of adverbs. This is indeed the case, as illustrated in 156. (Note, however, that 156.c. and d. can be given an acceptable interpretation while the a. and b. sentences

156. a. Sharon is still a spinster

b. Sharon is not a spinster any longer

c. *Sharon is already a spinster

d. *Sharon is not a spinster yet

take on an unacceptable interpretation if it is the age parameter which is focussed upon, the being beyond a marriageable age and never having married. This discrepancy does not arise with 'be a bachelor'.)

The expression 'be a virgin' is like 'be a spinster' in that it too denotes a secondary state defined in terms of the never-having-happened of some event--in this case, that of having sexual intercourse. There exists a special linguistic expression for the exit from the state of virginity--'lose one's virginity'--which, because it is more or less semantically equivalent to 'have intercourse for the first time', denotes a unique, unrepeatable event (unlike, for example, 'lose one's husband' or, more concretely, 'lose one's umbrella'). What exactly constitutes having sexual intercourse may, of course, be disputed and this will be reflected in disagreement among speakers as to the applicability of the

expression 'be a virgin' in certain borderline cases. But this does not affect the point at issue, for under such a social or experiential interpretation of virginity as that which we are considering (cf. also the O.E.D.) it will be the existence or non-existence of a past instance of such an event or act, however it is defined for a particular individual or group, which will determine the applicability of 'be a virgin'. This is in contrast to a non-experiential view of virginity whereby it is not (the first instance of) the act but solely the physical consequences of it which are criterial. Under such an interpretation it would be possible to imagine possible worlds in which 'physical' virginity could be restored by some surgical process and, hence, in which case such sentences as 141.a.i. and 142.a.i. could be given acceptable interpretations (cf. also Horn, 1970). In such worlds, losing one's virginity, like getting married, would be a reversible process in the sense that there would exist a process which 'undoes' the result of having intercourse, thereby taking the person back to her original state of virginity. However, it is under an experiential view that we have the more interesting principle of temporal irreversibility, the impossibility of 'erasing' the occurrence of an event from the past.[1] Any possible world in which 141.a.i. and 142.a.i. would be acceptable under an experiential interpretation of virginity would be an entirely different kind of world from that

---

[1] But consider the interesting problems posed by such activities as rewriting history and annulments, which latter might be considered not simply as the undoing of a marriage, as in the case of a divorce, but its removal from the history of an individual.

with which we are familiar and from those which we can readily imagine: time, as ordinarily conceptualized by the English speaker, is unidirectional and noncircular. One never returns to a previous point in time. What is done is forever done. The past is closed.[1]

Let us now consider the complementary situation which arises in the case of 'be a mother'. Although usage is not quite so clear-cut here, let us assume that motherhood is a state which continues to exist even if one's children cease to exist. Furthermore, we will disregard such complications as those presented by foster and adopted parents and by the 'disowning' of offspring (although this latter is more relevant to the similar but not entirely comparable relation of fatherhood). With these and perhaps other provisos[2] in mind, the criterial event for defining the secondary state denoted by 'be a mother' is that denoted by 'bear (?& care for) a child'; and it is only the at-least-once, i.e., the first, occurrence of this event which is crucial. Thus, the situation denoted by 'be a mother' is defined in terms of the

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[1] For some discussion of the asymmetry of the past-future axis, cf. Prior, 1967; Gale, 1967, 1968; and Rescher & Urquhart (1971).

[2] It will be apparent by now that all the expressions we have been discussing here are bound up with social as well as biological facts. That is, there are problems about what actually constitutes virginity or being married or being a mother, etc. and it is to be expected that there will be a certain amount of indeterminacy in these areas when various complicating factors are introduced and a certain degree of individual variation as regards the application of these terms to borderline or pathological situations.

at-least-once occurrence of that event which marks its inception (rather than its cessation as in the case of 'be a virgin'); and, because the occurrence itself is all that is crucial and cannot be 'erased' from the history of the individual, motherhood is a state which can come to be but cannot cease to be.

Now that the nature of the locational relations denoted by 'be a virgin' and 'be a mother' has been explicated in terms of the never-having-happened and the having-happened-at-least-once, respectively, of some criterial event, the relationship and similarity between the deviant sentences 141.a.i., 142.a.i., 143.a.ii. and 144.a.ii., on the one hand, and 137.b., 138.b., 139.a. and 140.a., on the other, should become clear. For the latter sentences would each entail a non-past inclusive-tense sentence in which the co-occurrence requirements regarding the negativity of the proposition within the scope of the adverbial are not satisfied--cf. sentences 157.a. to d. with 137.b., 138.b., 139.a., and 140.a.:

157. a.i. *Mary has already not/never had intercourse

ii. Mary has already given birth to a child

b.i. *Mary has not yet not/never had intercourse
ii. Mary has not yet given birth to a child
c.i. Mary has still not/never had intercourse

ii. *Mary has still given birth to a child

d.i. *Mary has no longer not/never had intercourse

ii. *Mary has no longer given birth to a child

Finally, we must look briefly at the other sets of expressions which were found, at the beginning of this section, to display

similar co-occurrence restrictions with 'already' and 'yet' or with 'still' and 'any longer'. These were the antonymous or polar pairs 'be young'/'be old', 'be fresh'/'be stale' and 'be early'/'be late'. Like 'be small'/'be large', 'be good'/'be bad', 'be far'/'be near', etc., these all involve implicitly graded or comparative lexemes: "they do not refer to independent, 'opposite' qualities, but are merely lexical devices for grading as 'more than' or 'less than' with respect to some implicit norm" (Lyons, 1968: 465-6). However, the first set differs from the second in one important respect: they are all time-dependent, in the sense that an object's location with respect to the norm on the semantic dimension or parameter involved is either stationary (the weaker condition) or else moving forward (the stronger condition)--i.e. it cannot move backwards. A person gets older with each passing moment, a loaf of bread either gets staler or remains at a particular stage of freshness (e.g. if it is frozen), and it ("now") always gets later. It is these temporal restrictions which underlie the fact that those expressions which describe states corresponding to the 'less than' side of the norm cannot co-occur with 'already' and 'yet', which involve inception, and that those which describe states corresponding to the 'more than' side of the norm cannot co-occur with 'still' and 'any longer', which involve cessation. The contradiction which results from such co-occurrence can easily be explicated within our

framework, which we will now proceed to elaborate.[1, 2]

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[1] It will be recalled that in § 7.4.3 we noted a relationship between 'be young' and 'have existed/lived for a short time' and 'be old' and 'have existed/lived for a long time', the implicit norm being transferred to the measure of an extension of time from a position within the average life-span. However, this is perhaps a misleading way of putting things, for although a particular age may function as a positional norm (say, anyone over 20 years of age is old, anyone under 20 years of age is young), age itself is an extension and when we say of someone that he is so many years old or so many years of age, we are saying that the measure of his temporal existential extension up to the present moment is so many years. When we speak of someone reaching a certain age, we are in fact making the same kind of statement as when we speak of someone reaching a certain height--i.e. that it (now) is the case that his temporal or spatial (vertical) extension is so many years or so many inches, respectively. Now, one's temporal extension, i.e. one's age, is located in one's past, it is part of one's history, since it is the sum of times at which one has been in existence/alive. None of these instances of existential location can be erased. Hence, one's temporal extension can never get shorter though it can and, indeed, must get longer each moment one continues to be alive. Hence, we can see that it is the same fundamental axiom--that past events cannot be erased or changed--that underlies the temporal restrictions we have informally associated with these expressions. Similar observations could be made in the case of 'be early'/'be late' (cf. 'It's early in the morning'/'Not much of the morning has passed', 'It's late in the day'/'Most of the day is gone'). In the case of 'be fresh' and 'be stale', however, it is more a matter of physical non-reversibility, which in some possible world could conceivably not exist--i.e. as with physical virginity, one could imagine a world in which it was possible to turn a stale loaf of bread into a fresh one by some physical process. Similarly if 'be young' and 'be old' are interpreted in a simply physical way. In such cases, then, temporal restrictions as formulated above would have to be associated with the normal use of these expressions.

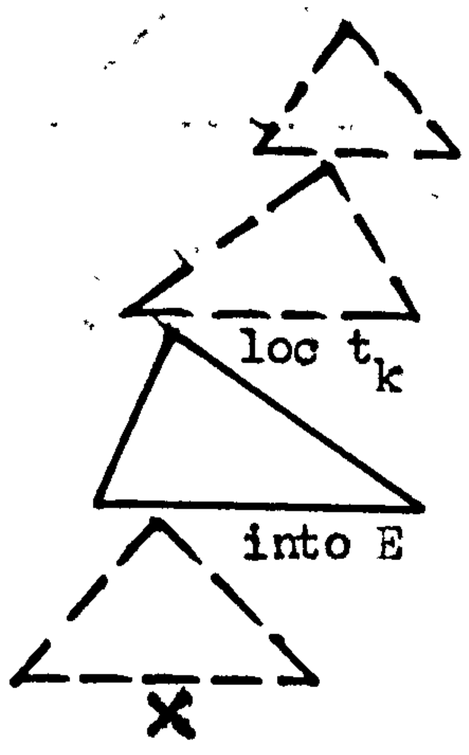
[2] Some of the distinctions discussed in the foregoing section have been made quite independently, and towards different ends, in Clark (1974). Her 'entrance-boundary states' correspond, in the present study, to states which cannot cease to be (i.e. those involving the having-happened-at-least-once of some event) and her 'exit-boundary states' to those states which cannot be re-entered (i.e. those involving the never-having-happened of some event).

8.3.4 Underlying structures

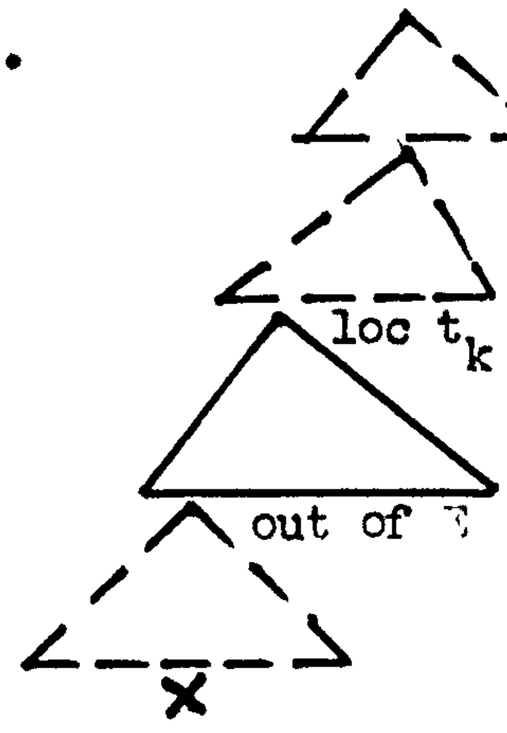
8.3.4.1 The inceptive/cessative core

We can account uniformly for the observations made in § 8.3.3 concerning the co-occurrence potential of 'already', 'yet', 'still' and 'any longer'/'any more' if we first assign to 'already' and 'yet' semantic representations in which the lower-most configuration (i.e. that coming immediately above the structure (X) representing the situation being described by the sentence containing one of these adverbials) is an inceptive structure and to 'still' and 'any more' one in which the corresponding configuration is a cessative structure. That is, 158. below will be common to the

158.



159.



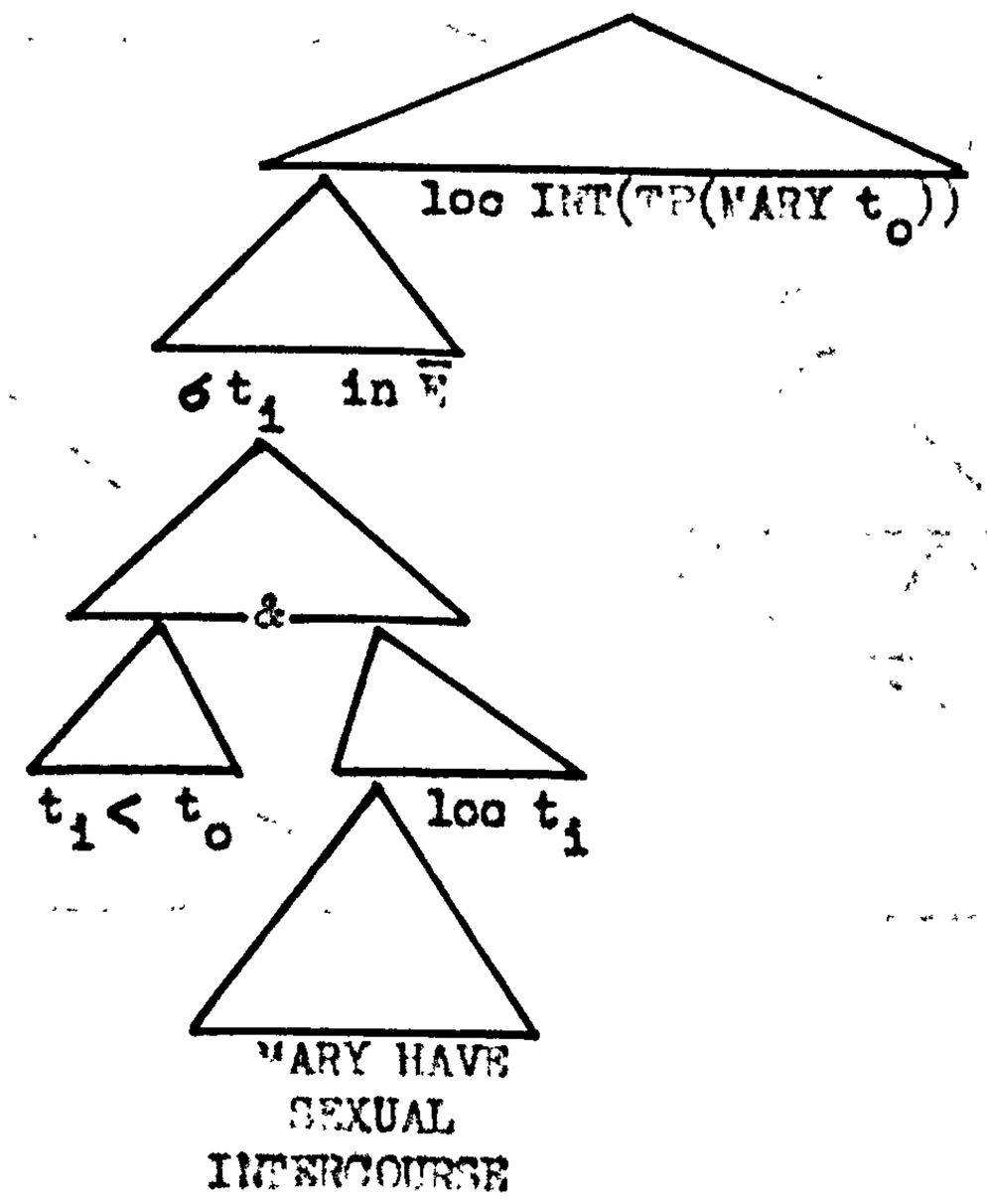
semantic representations of 'already' and 'yet' and 159. to those of 'still' and 'any longer'. (We are not concerned, at the moment, with the remainder of the structure above the existential predications since this is not crucial to explaining the co-occurrence restrictions discussed above and would complicate matters at this point.)

Now, let us consider the semantic representation for a sentence such as 160. and the result of embedding it as X in 158. above.

160. Mary has never had sexual intercourse

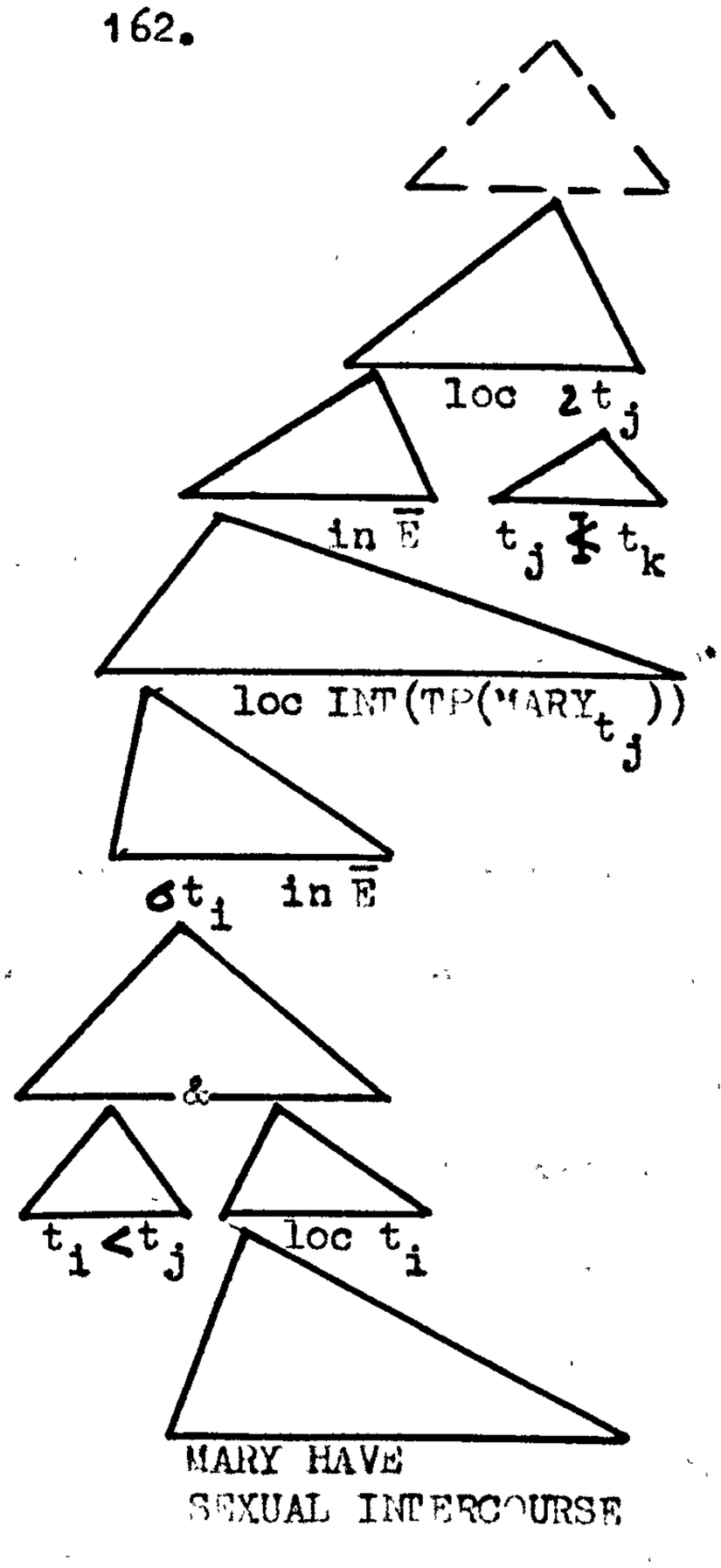
In 160., which involves a negated existential interpretation of inclusive tense, the relevant inclusive period is the temporal projection of Mary's existential extension, this including t_o. We will abbreviate this structure as $TP(MARY_{t_o})$. The essential elements of the semantic representation of 160. are given in 161.

161.

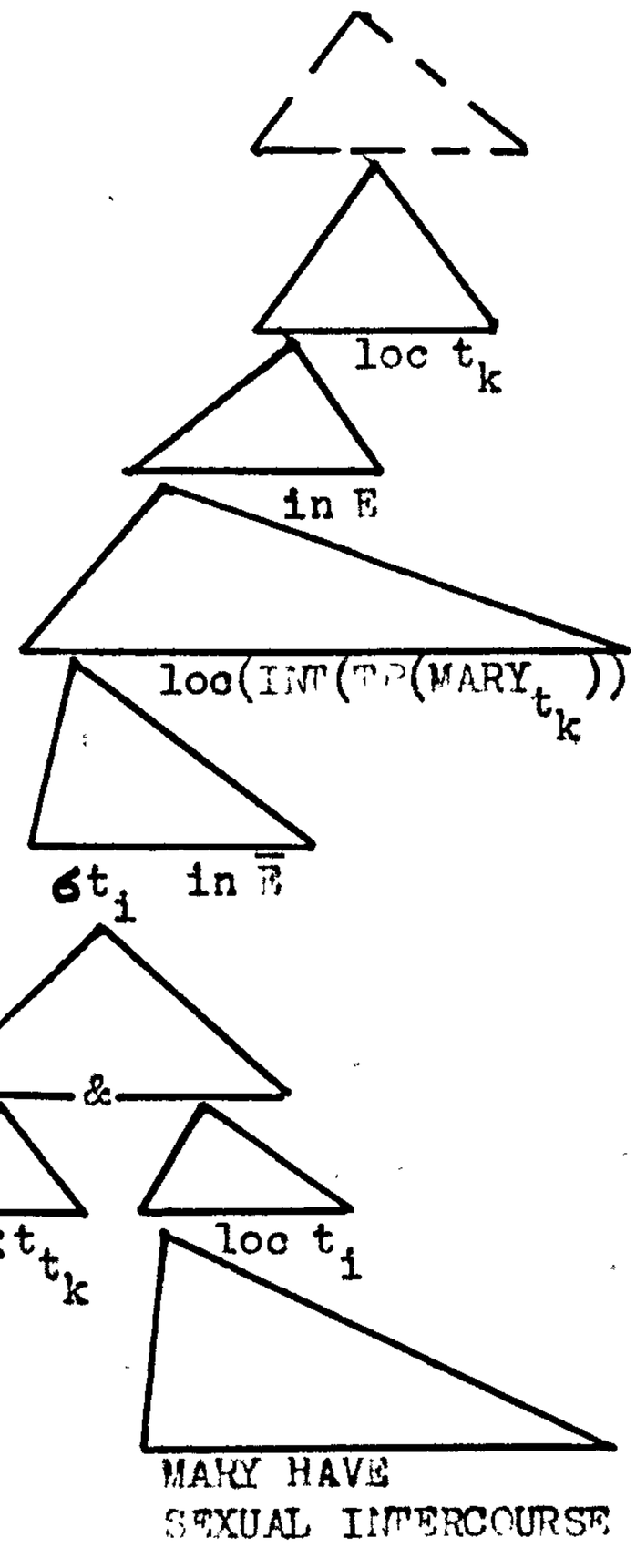


If we now embed 161. in 158. and reduce loc t_k (into E(x)) to its ultimate conjunctive form we will have the structure in 162. Now, since the first conjunct of 162. entails 163. we end up with a

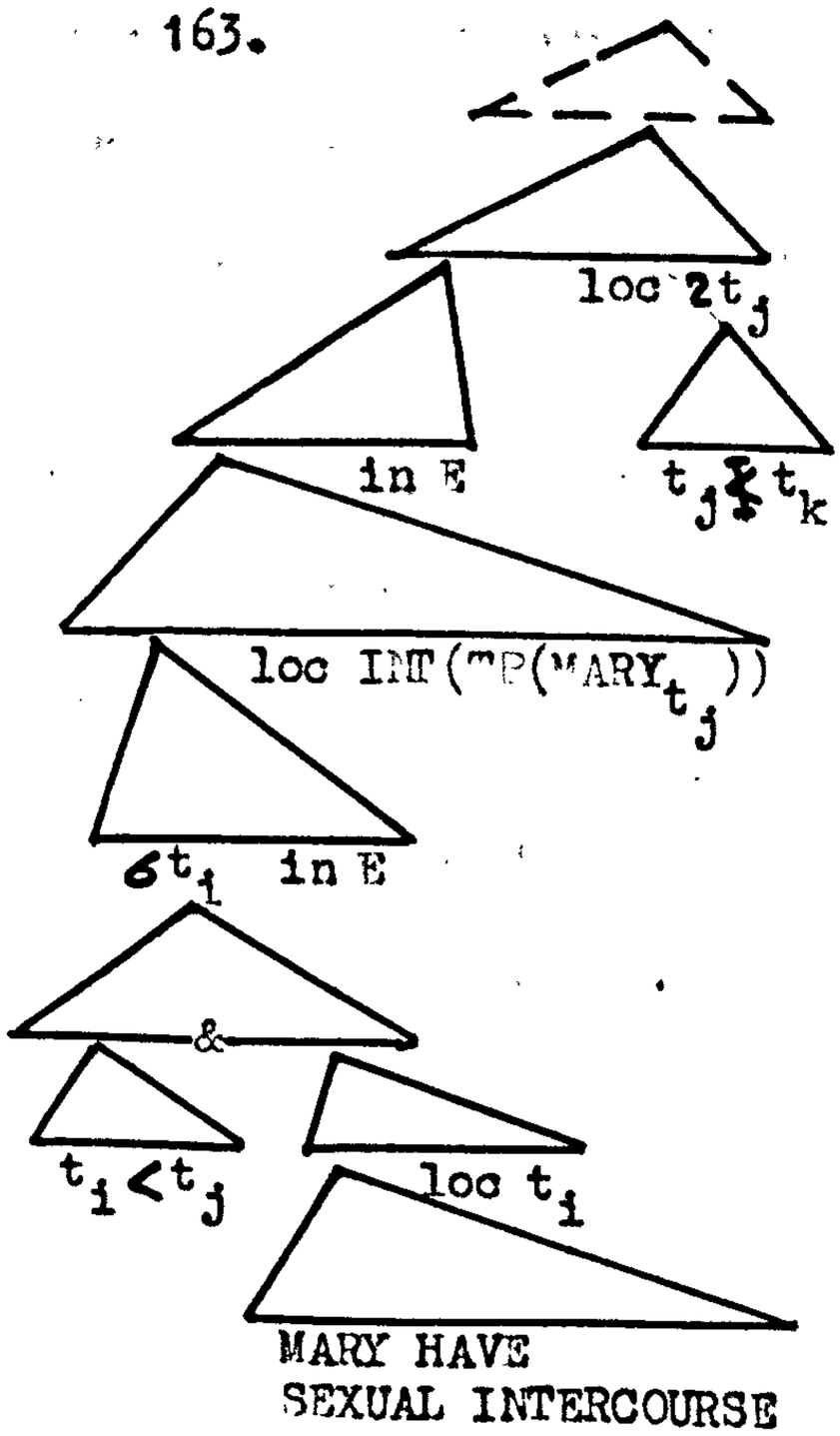
162.


loc 2t_j
in E
t_j ≠ t_k
loc INT(TP('MARY_t_j))
σt_i in E
&
t_i < t_j
loc t_i
MARY HAVE
SEXUAL INTERCOURSE

&


loc t_k
in E
loc(INT(TP(MARY_t_k))
σt_i in E
&
t_i < t_t_k
loc t_i
MARY HAVE
SEXUAL INTERCOURSE

163.


loc 2t_j
in E
t_j ≠ t_k
loc INT(TP('MARY_t_j))
σt_i in E
&
t_i < t_j
loc t_i
MARY HAVE
SEXUAL INTERCOURSE

conjunction which can be roughly glossed as "at the moment t_j just before t_k it is the case that within the temporal extension of Mary (who is in existence at t_j) there exists a time t_i before t_j at which she had sexual intercourse, but at t_k it is not the case that there exists such a moment", i.e., "at one moment it is true that Mary has at sometime in her past had intercourse but at the very next moment it is the case that she has never (i.e. at no time in her past) had intercourse"--cf. 164. below. What we are left with

164. *It came to be that Mary had never had sexual intercourse

is the implication that the possibility exists (and only this, since we have not considered the uppermost structure, represented by the dotted triangle) that an event can disappear from the past. This contradicts the basic axiom discussed informally above that what has been the case cannot cease to have been the case. Prior (1967: 33, 35) has suggested various formulations for this axiom: "Every true proposition concerning the past is necessary"; "Whatever has been the case cannot now not have been the case ($CP_\rho NNP_\rho$); "What is the case will-always have-been the case (C_pGP_p)". As we have not investigated modal structures, only the third of Prior's suggestions could be given an explicit formulation within our framework.

It can easily be verified, by reversing what comes under $\underline{\text{loc } t_j}$ and $\underline{\text{loc } t_k}$ in 162., that no contradiction results when a structure such as 161. is embedded in a cessative structure such as 159.--cf. 165. below. Furthermore, since 160. is, at least,

165. It ceased to be that Mary had never had intercourse

entailed by 166. the contradiction implied by 141.a.i. and

166. Mary is a virgin

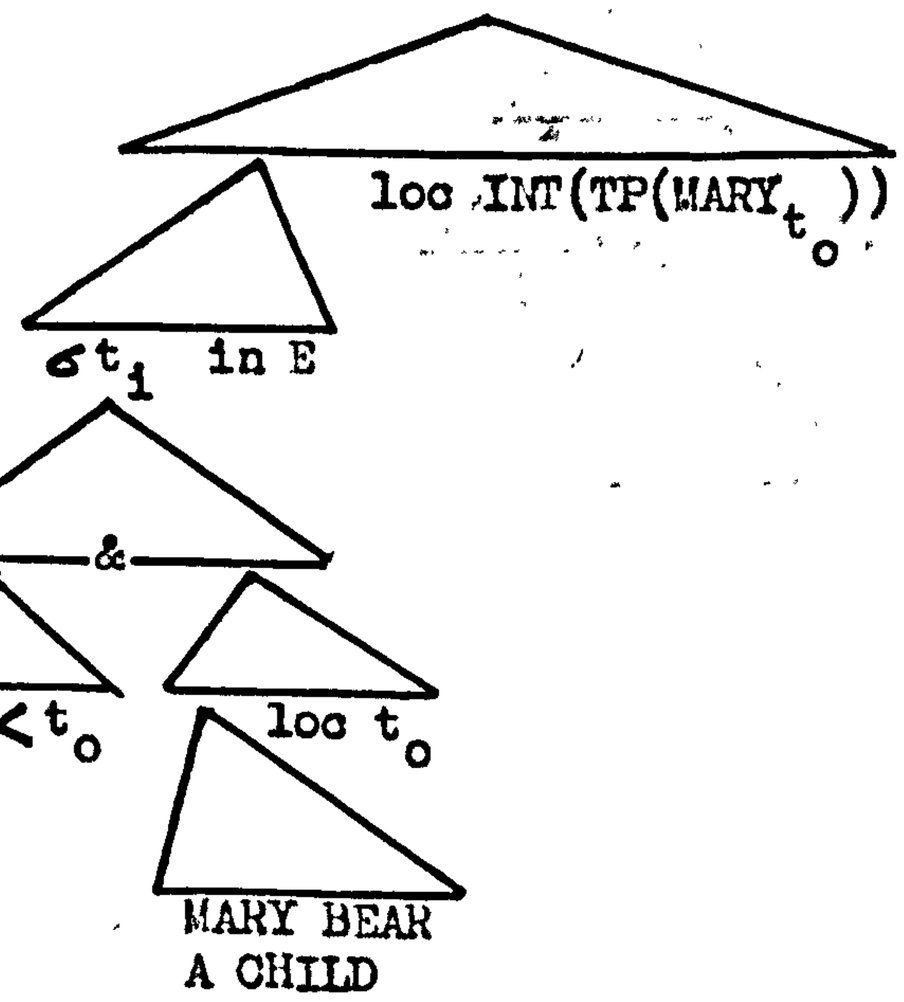
142.a.i. and lacking in 143.a.i. and 144.a.i. will also be accounted for.

Consider now the semantic representation for a sentence such as 167., under an existential interpretation. Assigning the same

167. Mary has borne a child

meaning to $TP(MARY_{t_o})$, the relevant underlying structure will be as given in 168. below. If 168. is embedded as X in the cessative

168.



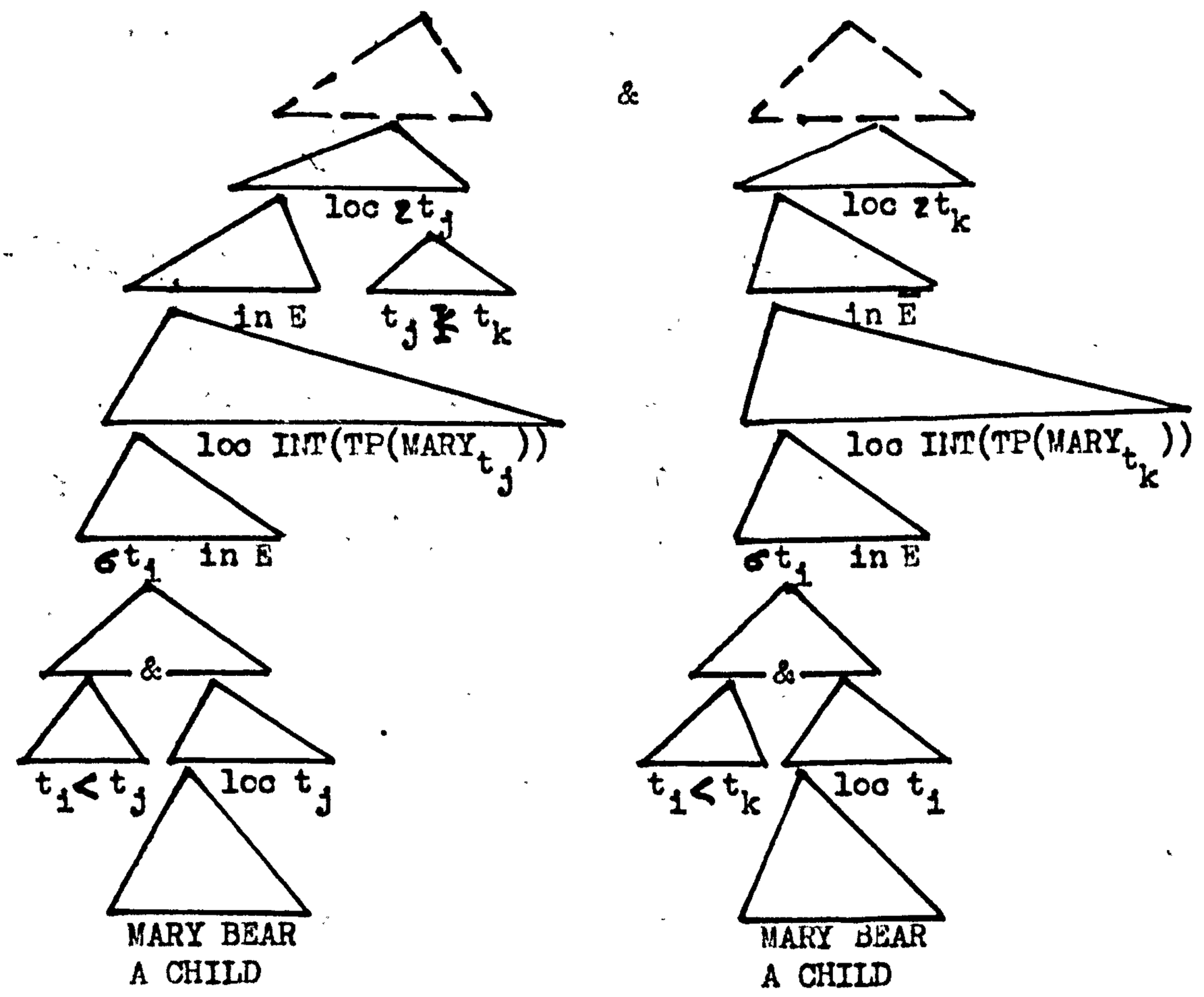
structure 159., a contradiction will again result, whereas this will not be the case if it is embedded as X in the inceptive structure 158.--cf. 169. and 170. below. The conjoined structure

169. *It ceased to be that Mary had borne a child

170. It came to be that Mary had borne a child

which would be entailed by embedding 168. in 159. is given in 171. below. This structure again implies the possibility that an

171.



event can disappear from the past since, roughly, it stands for "at one moment it is the case that there exists a time in Mary's past at which she bore a child but the very next moment it is not true that there exists an instance of child bearing in her past". And, since 167. will be entailed by or equivalent to 172., the

172. Mary is a mother

deviancy of 143.a.ii. and 144.a.ii. and the acceptability of 141.a.ii. and of 142.a.ii. will follow.

Finally, we must consider the consequences of embedding the underlying structures of sentences such as 173. and 174. in both inceptive and cessative structures--cf. 175. and 176. Simplifying

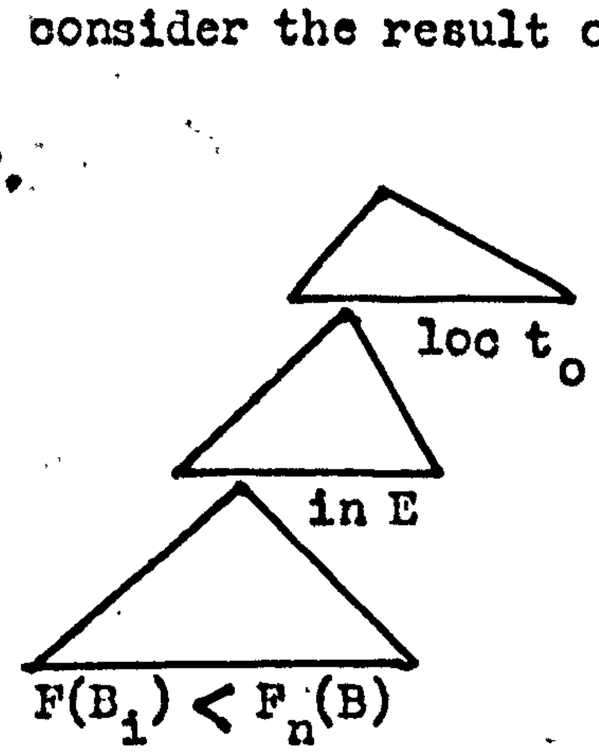
somewhat, let us represent the degree of freshness of a loaf of

175. The loaf of bread became $\begin{cases} *\text{fresh} \\ \text{stale} \end{cases}$

176. The loaf of bread ceased to be $\begin{cases} \text{fresh} \\ *\text{stale} \end{cases}$

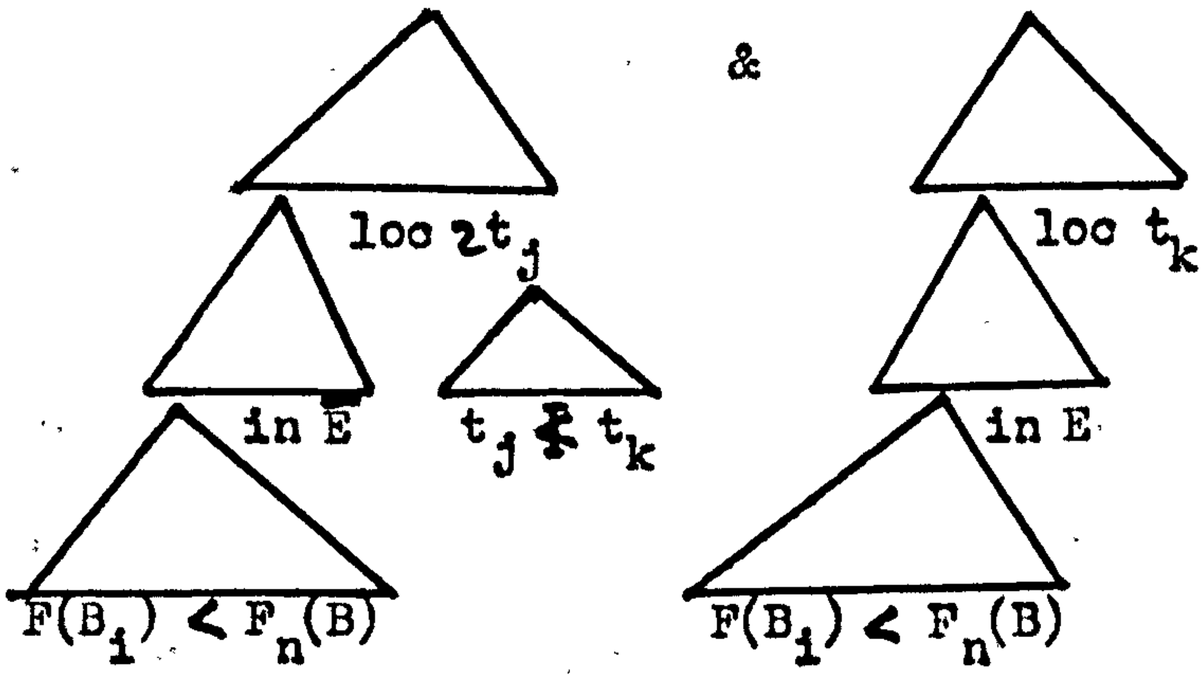
bread $\underline{B_x}$ as $\underline{F(B_x)}$ and the 'freshness norm' for bread as $\underline{F_n(B)}$. If the freshness of a loaf of bread is less than $\underline{F_n(B)}$, then the loaf of bread can be described as being fresh, if it is greater than $F_n(B)$, then it can be described as being stale. ($F_n(B)$ will be a range of values rather than a point-value since polar terms are contraries rather than contradictions--i.e. a loaf of bread can be described as being neither fresh nor stale.) The temporal restriction imposed on $F(B_x)$ is that $F(B_x)$ at one moment must be greater than or equal to $F(B_x)$ at the very next moment. With this in mind, consider the result of embedding 177. below, a simplified

177.



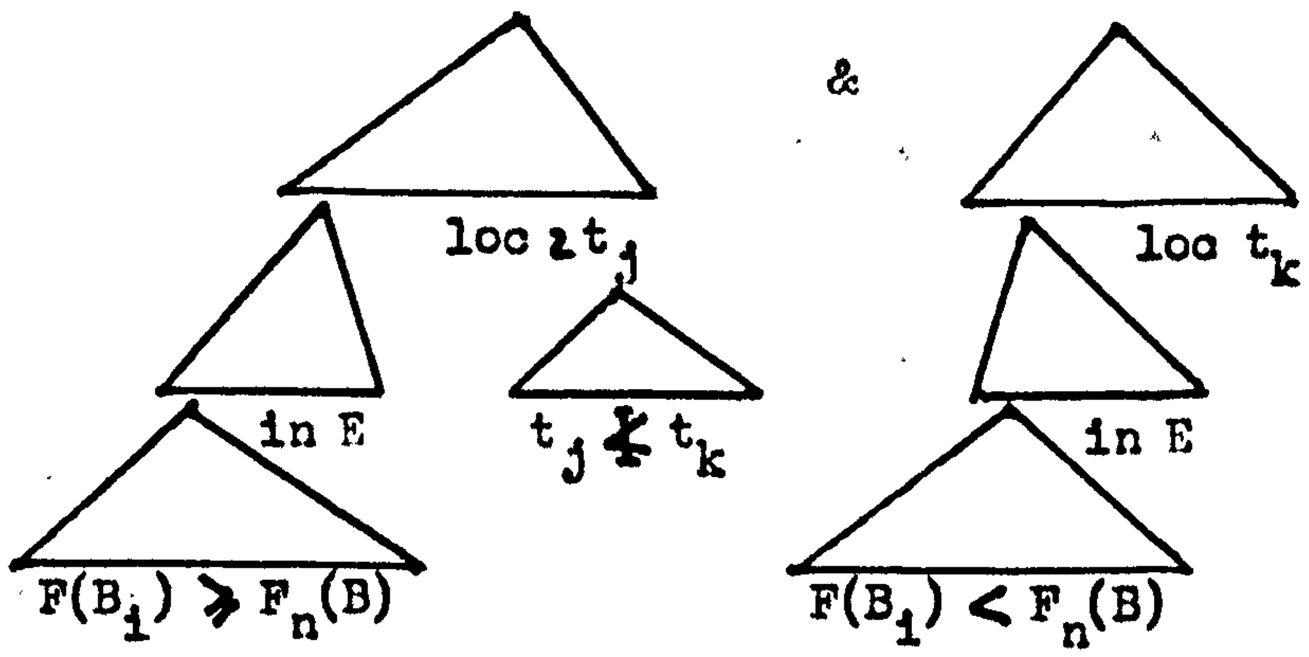
representation for 173., in the inceptive structure 158. Reducing $\underline{\text{loc } t_k}\,\underline{(\text{into } E(X))}$ to its conjunctive source, we would have the configuration in 178. Given the complementarity of < and ≥, 178.

178.



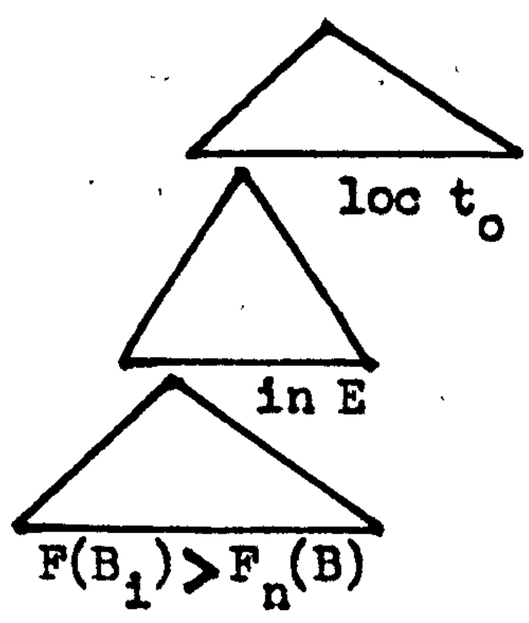
is equivalent to 179. But 179. does not conform to the temporal

179.



requirements associated with $F(B_x)$ since, if at one moment $F(B_i)$ is greater or equal to $F_n(B)$ and at the very next moment it is less than $F_n(B)$, then it is not the case that $F(B_i)$ has remained the same or increased from one moment to the next. A similar violation will occur if 180. below, representing the meaning of

180.



174., is embedded in a cessative structure. On the other hand, no violations occur when 180. is embedded in an inceptive structure or 177. in a cessative structure.

8.3.4.2 The dual time reference and the role of negation

We have still to make precise the full semantic structure of our set of adverbs. So far, we have isolated only the bottom-most inceptive or cessative existential configuration plus an immediately superordinate temporal locative. What remains to be discussed is the nature of the semantic configuration above this locative.

First of all, it is clear that each of the adverbs involves a dual time reference. This has been remarked upon in our discussion of co-occurrence potential in §8.3.3.1 and in our review of Horn (1970), Doherty (1973) and Morrissey (1973) in § 8.3.2. For each adverb the primary temporal reference point is t_o or some contextually established reference point before or after t_o. The second reference point is some time earlier than the primary one. That is, we appear to be concerned with a temporal-locative configuration of the type required in the semantic representation of inclusive tense sentences--in particular, that underlying the resultative use of inclusive tense.

To see what is unique to each adverb, let us begin by considering 'still' and 'not yet'. We have already seen that these two differ from each other by the fact that 'still' involves a cessative structure while 'not yet' involves an inceptive one. However, it is clear that 'still' does not denote simply cessation nor 'not yet' simply inception. On the contrary, they express a lack of

cessation and inception, respectively: 181.a. below implies 181.b. and 181.c. while 182.a. implies 182.b. and 182.c. More precisely, 'not yet' in 182.a. indicates that it is not the case

181. a. John is still asleep

b. John is asleep

c. John has not woken up (resultative interpretation)

182. a. John is not yet asleep

b. John is not asleep

c. John has not fallen asleep (resultative interpretation)

that there is in existence at t_o an instance of John being asleep which came into existence some time before t_o--cf. the semantic representation given in 183.[1] A rougher gloss of 183. would be

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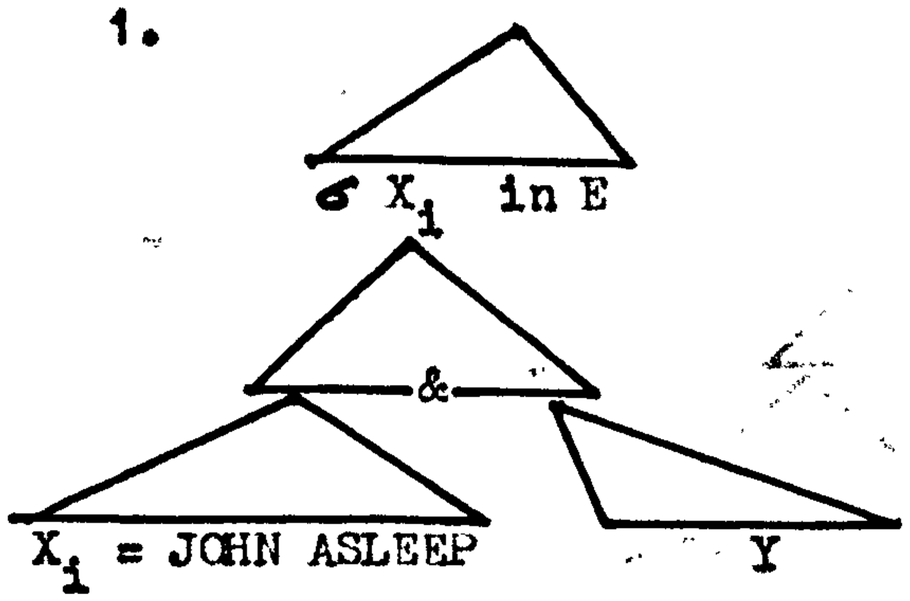
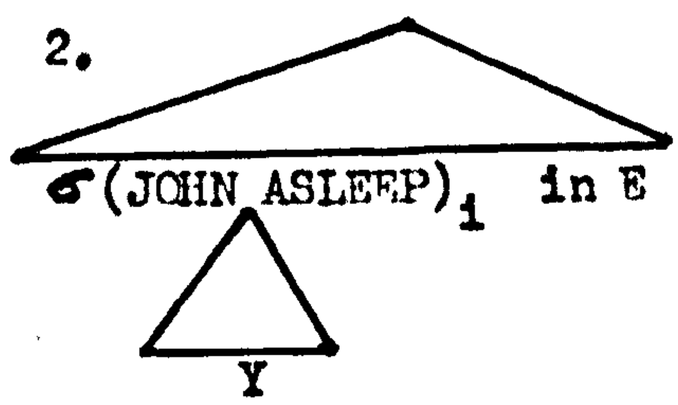
[1] We have abbreviated the structure in 1. below as in 2., where Y

1.

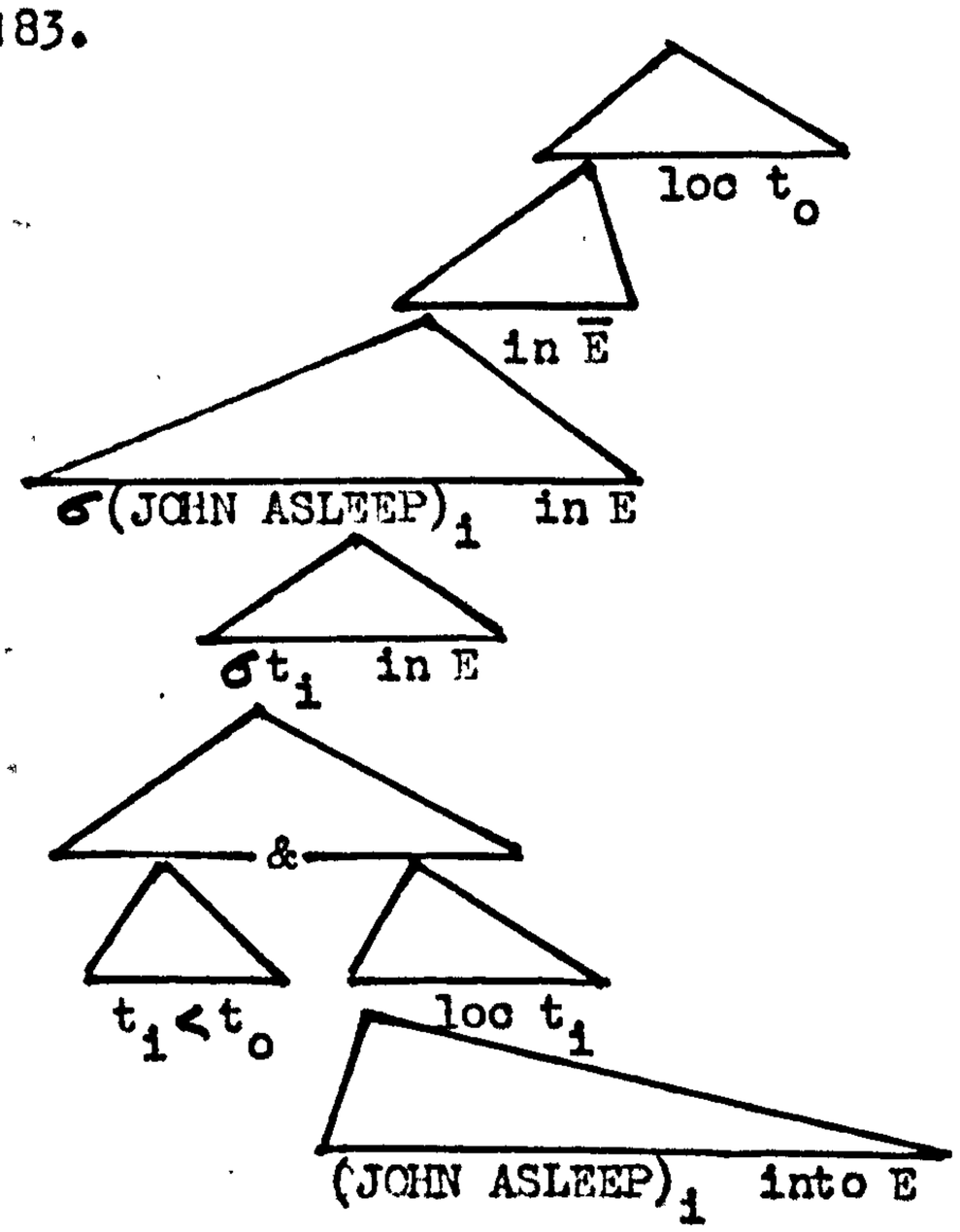


2.



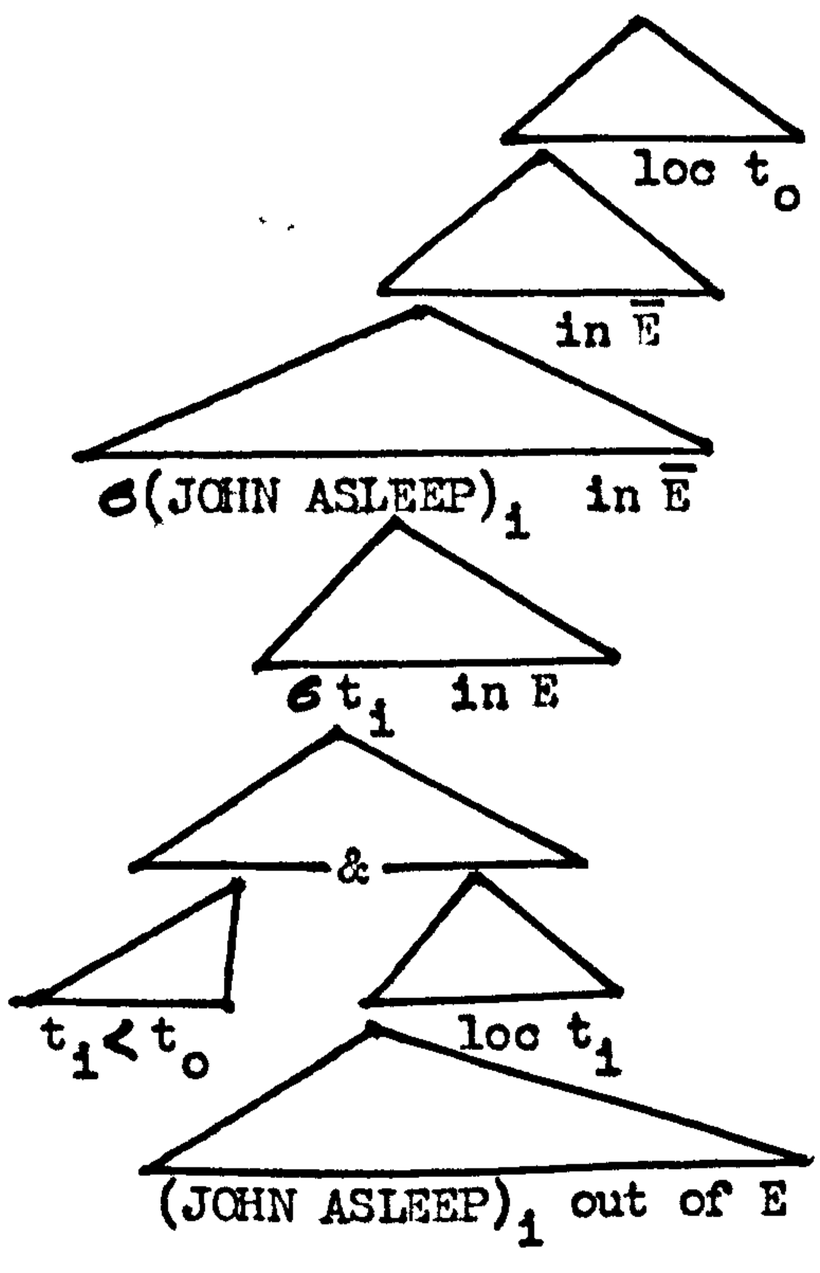
contains another instance of X_i or $(\text{JOHN ASLEEP})_i$, respectively.

183.



"it has not come to be the case that John is asleep". In the case of 181.a., on the other hand, it is the going out of existence of a state of affairs--John being asleep--which has not taken place (or, equivalently, a negative state of affairs which has not (resultative) come into existence--see below). The structure in 184., underlying

184.



181.a., can be roughly glossed as "It has not ceased to be the case that John is at the party". As the bottom-most proposition in 183. can be lexicalized as 'John arrive at the party' and in 184. as 'John left the party' we are in fact claiming that 182.a. is very similar if not identical in its semantic structure to 182.c. and, likewise, that 181.a. and 181.c. have very similar underlying representations. This accounts for the fact that 181.a. and 182.a. not only entail 181.c. and 182.c., respectively, but are also entailed by them.

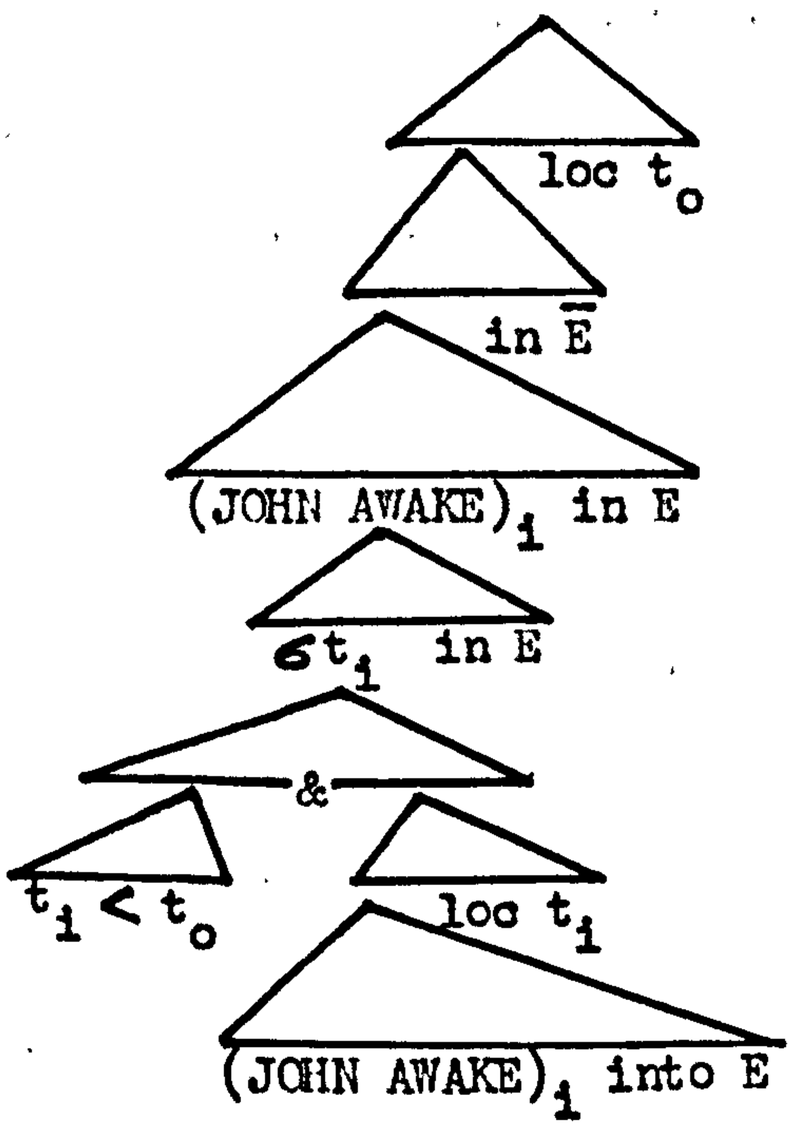
Traugott & Waterhouse (1969: 302) suggest in a footnote that 'still' be analyzed, in general, as having the underlying structure of 'not yet not' (i.e. the suppletive variant of 'already not'). This relation between 'still' and '(not) yet'--as exemplified below--

185. John is still asleep

186. John is not yet awake (= not asleep)

is a reflection of the more general fact that the cessation of a state <u>out of E(X)</u> is equivalent to the inception of the complementary state <u>into E (in $\overline{E}$(X))</u> (or simply <u>into $\overline{E}$ (X)</u>--cf. p. 398.). That is, given the equivalence of <u>in $\overline{E}$ (JOHN ASLEEP)</u> and <u>in E(JOHN AWAKE)</u> (cf. fn. 1 p.595), 184. above is equivalent to 187. below,

187.



the underlying structure for 186.[1,2]

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[1] That is, if out of E(X) is treated as ultimately into $\bar{E}(X)$ then 'still' can be seen more clearly to parallel 'all' in involving the incorporation of two negatives while 'not yet' parallels 'none' in incorporating a single negative. This is consistent with the fact that although 1. and 2. below are logically equivalent, 1. is felt to be more emphatic, expressing some

1. John is still not here
2. John is not here yet

element of alarm, surprise or impatience absent, or present to a lesser degree, in 2. This would be accounted for by the fact that the two additional negatives inherent in 'still' would be associated with two additional cancellings of expectation. (cf. Leech, 1974).

[2] Related to this equivalence between 'still' and 'not yet not' is a use of 'yet' in non-negative contexts noted in Langendoen (1966): 1. below is perfectly acceptable, is paraphrasable by 2. and entails 3. (Because 'early'/'late' are polar rather than

1. It's early yet
2. It's still early
3.a. It's not yet late
 b. It's still not late

complemantary terms, 3. does not entail 1. and 2.). This phenomenon is not restricted to sentences involving polar adjectives: as sentences 4. to 6. reveal, the same relations of

4. We have yet to discuss the question of tenure
5. We have still to discuss the question of tenure
6.a. We have still not discussed the question of tenure
 b. We have not yet discussed the question of tenure

paraphrase and entailment hold with respect to expressions differing on a modal/aspectual dimension. We have not been able to investigate this problem further.

'Not anymore/any longer' and 'already', like 'still' and 'not yet', differ, in the first instance, by the presence of a cessative core in the former and an inceptive one in the latter. But unlike the second pair, 'not any more' does entail cessation and 'already' inception: 188.a. entails 188.b. and 188.c. while 189.a. entails 189.b. and 189.c.

188. a. John is no longer asleep
b. John is not asleep
c. John has woken up

189. a. John is already asleep
b. John is asleep
c. John has fallen asleep

Let us look first at 'no longer'/'not any longer'. If we were to treat this expression as having the semantic structure of 'still' plus that of a higher negative--i.e. if we were to assume that 'any longer' and 'still' formed a suppletive pair--then 188.a. would be essentially identical in meaning to 190. below. That is, underlying 'no longer'/'not any longer' would be three negative

190. John has not remained asleep (cf. It is not the case that John has not ceased to be asleep)

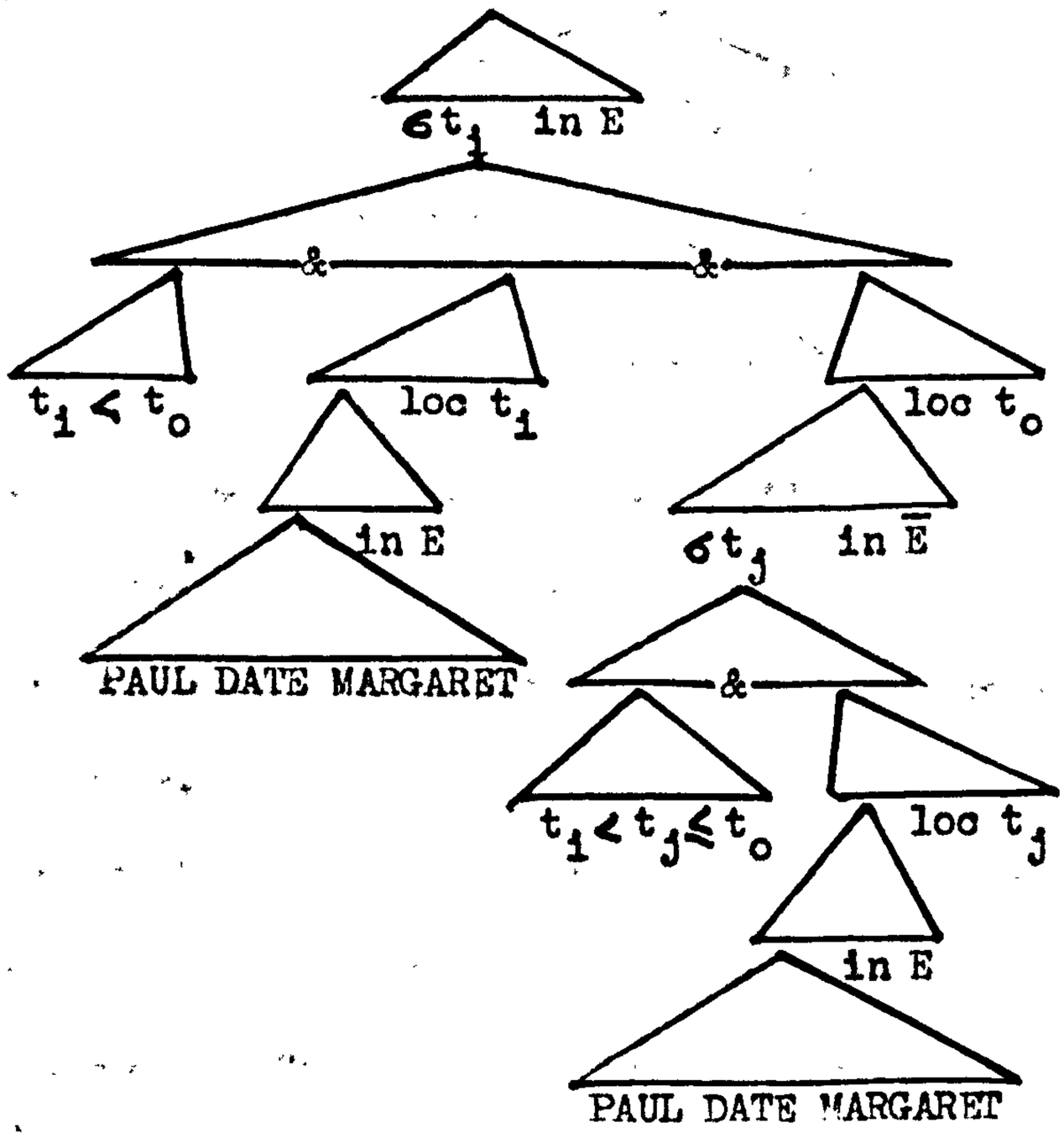
elements. We might therefore expect 188.a. to be emphatic in a way in which 188.c., involving only one negative element at the most, is not. However, this does not appear to be the case: sentences 191. and 192. (cases in which there is no verb to lexicalize the cessation of the described situation) are virtually

191. Paul has stopped dating Margaret

192. Paul is no longer dating Margaret

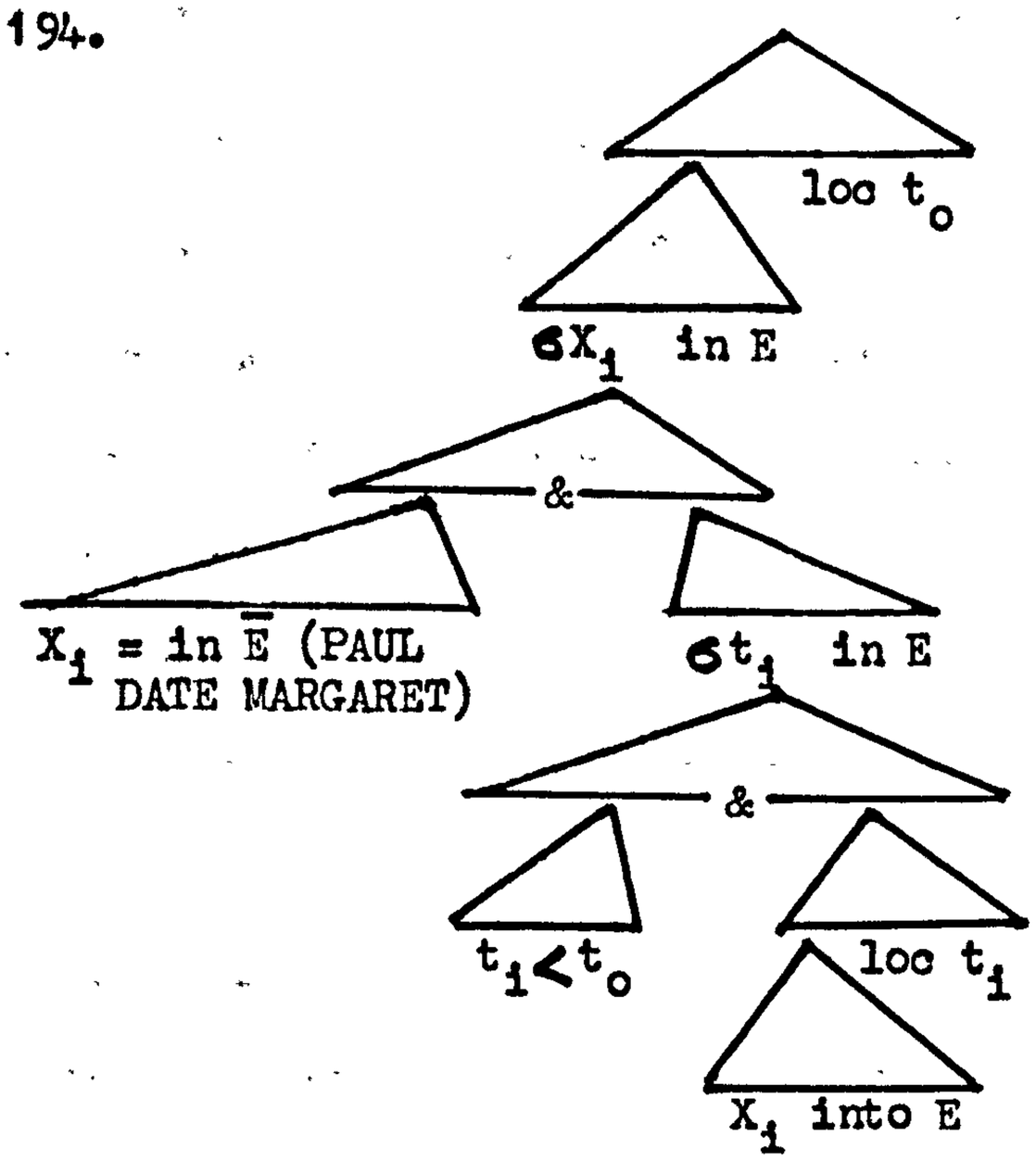
synonymous, both conceptually and stylistically. The only difference would appear to be one of focus: 191. concentrates on the border-crossing between the complementary situations of Paul dating and Paul not dating Margaret (i.e. on an event); 192. concentrates on the present non-existence of a situation which once was in existence. More precisely, 191. indicates that the outcome of the event of Paul ceasing to date Margaret is presently in existence (i.e. a resultative inclusive-tense interpretation) while 192. indicates that Paul's dating Margaret does not extend (i.e. is not in existence) beyond some unspecified point of time in the past. The following structure is proposed to represent this meaning:

193.



193. can be glossed as "There is a time in the past at which ~~John~~ Paul was dating Margaret such that there exists no time since then (i.e. after that time and up to and including t_o) at which ~~John~~ Paul was dating Margaret". Although we will not go into the details, 193. can be shown to entail the resultative inclusive-tense structure underlying 191. given below in 194. (We have treated cessation as the inception of non-existence.) Furthermore, it should be possible

194.



to derive 193. from 194. (cf. fn. \ p.569). Thus, although 193. does not contain explicitly a complex semantic predicate <u>out of E</u>, it does contain the configuration required for the definition of this predicate.

Despite the rather speculative nature of the structure proposed in 193., it does seem to reflect adequately and clearly the difference in focus between 191. and 192. What is perhaps

more encouraging, it enables us to see a possible approach to relating this usage of 'no longer'/'any longer' to its other temporal uses and to its non-temporal uses. Compare, for example, the following sentences:

195. John worked {a little / a lot} longer than he was required

196. John didn't work any longer than was required

197. The kitten is no longer than my foot

198. The kitten is {a bit / a lot} longer than my foot

195. states that an activity extended (= was in existence) beyond a certain measure. 197. and 198. are parallel except that it is the physical extension of a physical object which extends or does not extend beyond a certain measure. We have not had the time nor space to pursue this relationship further. However, it is obviously required that such a relationship be explicated before a definitive analysis of the temporal use of 'no/any longer' under discussion can be attempted. Similar considerations are involved in the analysis of 'anymore', which also has both temporal and (mainly in American English) non-temporal uses and which, unlike 'any longer', has a 'some' variant in non-negative contexts:

199. John wants {to work some more / some more work}

200. *John wants {to work anymore / anymore work}

201. *John doesn't want {to work some more / some more work}

202. John doesn't want {to work anymore / any more work}

Finally, let us turn our attention to the semantic representation for 'already'. Unlike 'not anymore', 'already' does seem to involve

more than simply the having come to be of the described situation: there is some element of emphasis which is often interpretable as "sooner than expected" (cf. Tesnière, 1966; Edgren, 1971). Compare, for example, sentences 203. and 204., the former being

203. Paul has started dating Margaret

204. Paul is already dating Margaret

explicitly inceptive, the latter only implicitly. The difference in meaning becomes clear when these are embedded in a context such as the following:

205. Paul met Margaret yesterday and has started dating her

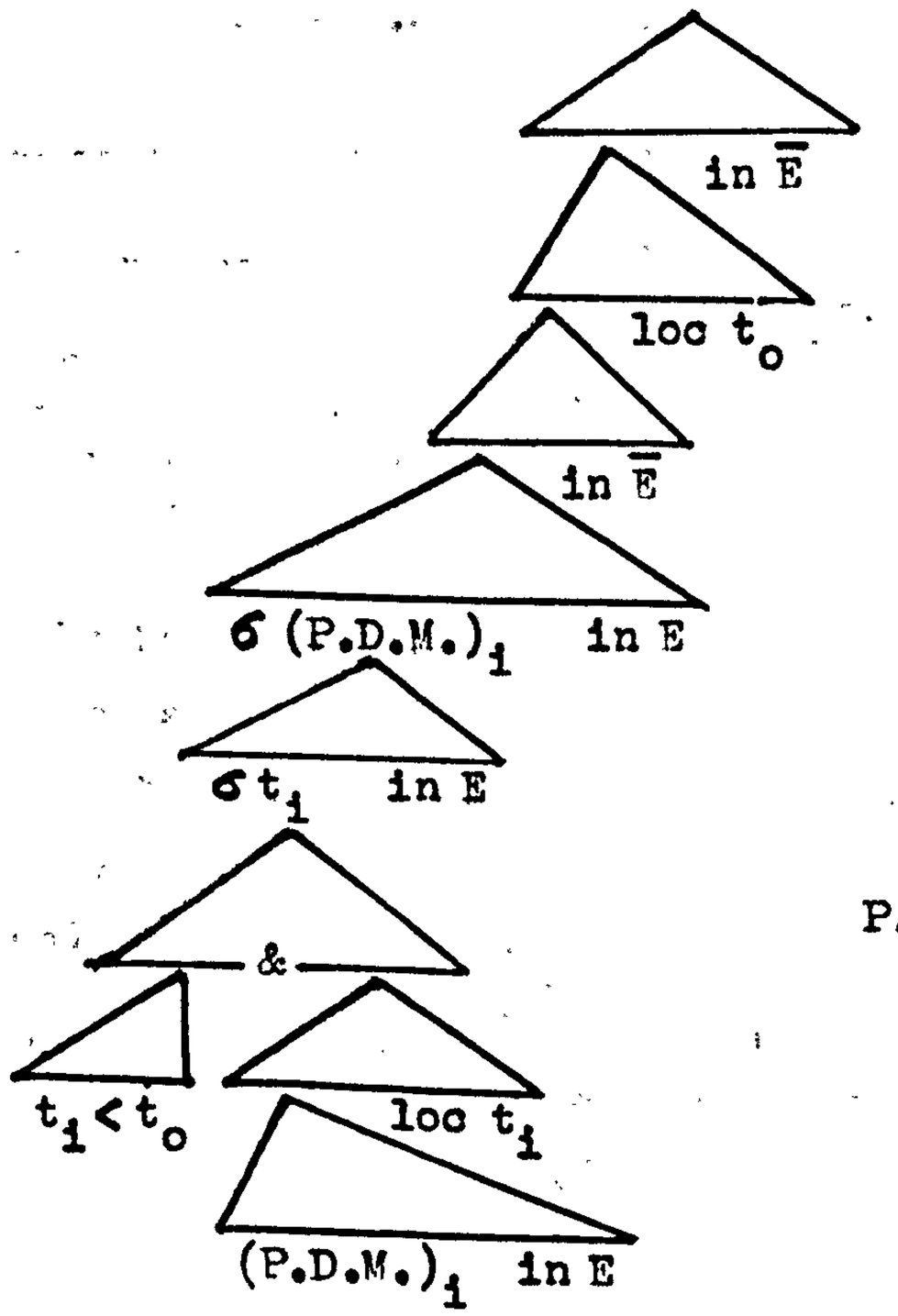
206. Paul met Margaret yesterday and is already dating her

Only 206. contains a nuance of surprise or subjective evaluation (e.g. "that's quicker/sooner than one would have expected").

Again, we can provide for (but not totally explain in an explicit fashion) the possibility of this element of unexpectedness by incorporating into the semantic representation of 'already' a negative element. Since we have found that 'already' is at least implicitly inceptive in nature, a double negative structure will be necessary in order that the inceptive content remain unaffected. Such a double negative configuration would receive additional motivation if it could be shown that 'already', whose diachronic source is 'all' + 'ready' ("all prepared"), involves universal quantification in its synchronic description.

Let us suppose then that the underlying structure for a sentence such as 204. is something like that in 207., for which a

207.



P.D.M. = PAUL DATE MARGARET

rough gloss is "It is not the case that it has not become the case that John is dating Margaret". The 'cancelled expectation' would be the structure under the upper-most <u>in $\overline{E}$</u>, i.e. the structure underlying 208. (cf. 183). This would accord well with

208. Paul is not yet dating Margaret

the nuance of "sooner than one might expect". Furthermore, since the two negatives (<u>in $\overline{E}$</u>) will cancel each other logically, we also can derive the simple inceptive structure underlying 203. Such a suggested semantic representation as 207. amounts therefore not to treating 'already' and 'yet' as a suppletive pair but rather to treating 'already' as incorporating both the semantic structure of

'not yet' as well as a higher negative.[1]

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[1] Some support for analyzing 'already' as incorporating a structure sharing some of the properties of universal quantification is that, under negation, it behaves in a rather similar fashion to 'all'/'every'. Consider first Traugott & Waterhouse's (1969: 287-8) discussion of the somewhat faulty suppletive pattern displayed by 'already'/'yet'. They consider the following set of sentences:

1. a. He has gone already
   b. *He has gone yet
2. a. ?He hasn't gone already
   b. He hasn't gone yet

The acceptability, under certain conditions, of 2.a. destroys the suppletive pattern. However, Traugott & Waterhouse overcome this discrepancy by concluding that 'already' in 2.a. is a different 'already' from that in 1.a. They claim that it is interpreted either (1) as "a negative response partially echoing such a question as Has he gone already? or a denial echo of He has gone already" (with 'already' emphatically stressed according to T & W--but see below) or (2) "as the answer to some such question as Has the best man gone to pick up the groom? No, he hasn't gone already" (again, with emphatic stress on 'already'). In this second reading there is "also an element of surprise, and some continuation of the answer is implied, e.g. But he will soon... it implies I'm surprised that you thought that he might have gone so soon/ by now (i.e. by this specific time in the present)". Traugott & Waterhouse conclude that 2.b. is the negative counterpart of 1.a. and that 2.a. has little or no conceptual relationship to 1.a.

This conclusion is an unfortunate one for several reasons. First, it ignores the fact that 2.a., on either of its readings, implies 2.b. Secondly, it forces one to recognize as distinct two interpretations of 'already' which are obviously closely related. Thirdly, by interpretating the data in such a way--in order to rescue an analysis in terms of suppletion--the similarity of 1.a. and 2.a. with an equally valid pattern is obscured. For example, compare 3. and 4. below with 1.a. and 2.a. above. Sentence 4. can be understood in two ways. First, it can be

3. John wants all the fringe benefits
4. John doesn't want all the fringe benefits

interpreted either as a denial of 3. (in which case 'doesn't' would be stressed) or simply as a statement expressing a negated proposition--cf. 5. below. Under this interpretation a

5. John has investigated the matter and has decided that he doesn't want all the fringe benefits

8.4 'Until' and 'since' adverbials

8.4.1. Preliminary remarks

In the following sections we will be considering some of the problems which arise in characterizing the meanings of 'until' and 'since' and in representing the semantic structure of sentences in which they occur. However, as we have already dealt briefly with 'since' in our discussion of inclusive tense in § 8.2.2., we shall direct most of our attention to the semantic description of 'until'. The reasons for grouping 'until' and 'since' together will become clear in the course of the discussion.

8.4.2. Previous approaches

There have appeared various fragmentary and/or incidental observations on the syntactic or semantic behaviour of 'until'

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continuation such as 4.' could be added. This reading of 4. is

4.' In fact, he doesn't want any of the fringe benefits

parallel to interpretation (1) given above for 2.a. (except that we disagree with Traugott & Waterhouse that it is 'already' that receives stress (if any element does)). Thus, 2.a. could also be followed by a similar completion--e.g. 2.a.'. Secondly, 4.

2.a.' In fact, (it looks like) he won't ever be going

can be interpreted as "some but not all" (especially if 'all' is stressed). That is, it 'expects' in a strong sense (cf. Leech, 1974) the continuation in 4.''. Furthermore, if 4.

4.'' But he wants some of them

under this interpretation is given the completion in 4.', the sentence is deviant:

6. ?John doesn't want all of the fringe benefits--in fact, he wants none of them

The same turns out to be true in the case of the second interpretation given above for 2.a. With 'already' stressed, 2.a. expects 2.a.'' and is odd when continued by 2.a(cf.7.):

2.a.'' He will be going sometime (soon)
7. ?He hasn't gone already--in fact, he won't be going at all

This parallelism between 'all', 'none' and 'some', on the one hand, and '(has) already', '(will) never' and '(will) sometime', on the other, seems to the author to be just as important and worthy of further investigation as that between 'some' and 'any' and 'already' and 'yet'.

adverbials in the recent literature (cf. Klima, 1964; Fillmore, 1969; Lindholm, 1969; Horn, 1970, Jackendoff, 1971; Chomsky, 1972; and Seuren, 1974a).[1] M. Geis (1970) discusses in somewhat fuller and more ambitious terms both 'until' and 'since' while Leech (1969) provides us with explicit proposals for the semantic representations of each of these. Both Geis and Leech regard 'until' and 'since' as being comparable and very similar in their semantic structure. In this section we shall concentrate on the details of their proposals while in §8.4.3 we will have occasion to refer in some detail to Horn's (1970) presuppositional treatment of 'until'.

Geis suggests, on the basis of syntactic evidence, that 'until' be derived from an underlying aspectual verb corresponding to 'begin' and 'since' from one corresponding to 'end'. More precisely, a sentence such as 209. is to be derived from something like 210.

209. John lived here until (the time at which) Bill died

210. John lived here all during a time that ended at the time at which Bill died

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[1] An informal, somewhat out-dated, but comprehensive study of both synchronic and diachronic aspects of the meanings and syntactic properties of 'since' as an adverb, preposition and conjunction are to be found in Fijn van Draat (1904, 1910, 1912).

while 211. is to be derived from 212.[1] Geis is somewhat vague in

211. John has lived here since (the time at which) Bill died

212. John has lived here all during the time that began at the time at which Bill died

his use of the term 'derive': it is not entirely clear whether he intends 209., for example, to be the result of applying some set of transformational rules to 210. or whether he intends both of them to be derived (by transformational rules) from a common underlying structure but one which is more similar in nature to 210. than it is to 209. His comment (M. Geis, 1970: 244) that sentences such as 210. and 212. "need only be thought of as sketches of the sort of information that must be contained in the underlying representations of sentences like [210.] and [212.]", is more in

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[1] Geis claims that the temporal interval involved in the case of 'until' is necessarily indefinite (cf. 'a time' in 210. versus 'the time' in 212.). He states (M. Geis, 1970: 248) that "the durative adverbial which until-phrases originate within must contain an indefinite determiner..." and suggests using this putative fact in accounting for the possibility of 'ever' occurring with 'since' adverbials but not with 'until' adverbials. Although we will find that it is not altogether appropriate to associate 'until' with the specification of an interval (whether 'definite' or 'indefinite'), it is nevertheless not always nor even usually the case that a beginning point for the interval is lacking: it is often implicitly the time of utterance, t_o, as in 1. below; sometimes it is made explicit by means of a 'from' phrase, as in 2.; otherwise it is most likely assumed to be retrievable from the context, as in 3.

1. John will live here until Bill dies
2. John lived here from the time he graduated until Bill died
3. John lived here until Bill died

line with the latter interpretation. However, as his analysis stands, we are left with simply a paraphrase relation (assuming it is accurate to view it as such) between two surface sentences: the elements occurring in 210. and 212. and the syntagmatic relations between them still require an explication in semantic terms.

What is perhaps remarkable is that, when we turn to Leech's (1969) purely semantic analysis of 'until' and 'since', it turns out that his semantic representations are nearly identical in both their 'vocabulary' and their 'syntax', formalization and symbolization aside, to those of Geis. Letting X stand for "John live here" and Y for "Bill die", Leech's representations for 209. and 211. would be those in 213. and 214., respectively. 213. would

213. (X)· →DUR · θ +PERI' ⟨θ'·←EXT −END · θ⟩
⟨θ'·←EXT +END · θ −PERI" ⟨θ"·←TIM · (Y)⟩⟩

214. (X)·→DUR · θ +PERI' ⟨θ'·← EXT −END · θ −PERI" ⟨θ"·←TIM (Y)⟩⟩
⟨θ'·← EXT +END · θ⟩

be glossed as " (X) · for the duration of · the period ⟨which · begins · then ⟩(and)⟨which · ends · at the time ⟨(at) which · takes place · (Y)⟩⟩" and 214. as "(X) · for the duration of · the period ⟨which · begins · at the time ⟨(at) which · takes place · (Y) ⟩⟩ (and) ⟨which · ends · then⟩ ". If we compare these representations with 210. and 212., respectively, we find that there are only three significant differences between them. First, Leech treats 'until' as involving a definite time interval (i.e. bounded by a specified beginning and end point), not an indefinite one as claimed by Geis

(cf. fn. 1, p. 632): "the beginning-point of the period is taken as given (either 'now' or 'then'), and the end-point is overtly stated (Leech, 1969: 133). Secondly, Leech's representation in 214. makes explicit, in contrast to 212., an end point of the interval he associates with the meaning of 'since'. However, we would claim that it is not entirely correct to regard the interval of time specified by 'since' adverbials as having such an end point: all that is implied is that the interval in question extends up to and includes "now"/"then". That is, a 'since' expression establishes an open-ended interval of time beginning at some specified point and extending up to and including the primary temporal reference point (e.g. t_o). It is the inclusive tense which ~~confines~~ limits the assignment of the existence of X to the times before and up to t_o, not thereby excluding, however, the possibility of X extending through and beyond t_o--cf. 86. in §8.2.2. Thirdly, whereas Geis has associated 'until' and 'since' with two distinct and formally unrelated verbs, Leech has, by means of the binary system ± END combined with the relative system ⇄EXT, made explicit the dimension along which both he and Geis regard these expressions as being semantically opposed, the structural and substantive parallelism of the remainder of each of their paraphrases/semantic representations reflecting the nature of their supposed semantic similarities.

However, just as Geis's paraphrases fall short of semantic representations, so also do many of Leech's semantic systems (e.g. ⇄DUR "last for the duration of", ⇄EXT "is an extremity of",

⇄TIM "be at time") treat as atomic elements of meaning which must be and can be analyzed further (cf. our comments in fn. 1, p. 316). More importantly, however, both Leech and Geis fail to take adequate account of the properties of X in 213. and 214. above--i.e. the type of situation being described by the main clause[1]--and, in particular, how these relate to the fact that each of 'since' and 'until' occur in sentences of two distinct kinds.

As we have already observed, inclusive tense sentences with a 'since' adverbial are susceptible to two interpretations--what we have called an existential and a universal reading. (We also found that this phenomenon was not peculiar to 'since'--cf. 87. in §8.2.2.) Leech (1969) also points out that 'since' can mean either "for the period from...to now" or "in the period from...to now", depending upon whether X, the described situation, is a state or an event (cf. §6.3.4.3. for Leech's distinction between state and event predications). However, although Leech pinpoints the contextual feature which is responsible for this shift in interpretation, he is unable to explain why this should be so and has to treat 'since' adverbials as polysemous. As we have seen in §8.2.2, however, an analysis which takes into account the difference in temporal properties of the different kinds of situations which sentences may describe reveals that this is not at all necessary. The different interpretations are entirely predictable from, or an

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[1] Of course, the type of situation described in the 'until' or 'since' clause is also constrained: it must, in general, be a situation which is implicitly or explicitly a border-crossing, i.e. one which projects onto a single point in time--cf. Leech's use of -PERI in 213. and 214.

automatic consequence of, the type of temporal projection a situation of a given type may have. All an adverbial such as 'since Bill died' or, for that matter, such as 'during the conference', 'while John was speaking', 'today', ~~do~~ does is identify on the time axis an interval within which or through which the situation being described is located. It will be the temporal-existential 'exchange value' (to use Bull's term) of the situation being described which will determine if it can be located in a continuous manner along all the points with the interval (hence the possibility of a universal interpretation) or if it must have single point or bounded temporal projections within the interval (hence the requirement of an existential interpretation).

Now, in view of the alleged semantic parallelism between 'since' and 'until', the question immediately arises as to whether 'until' adverbials can also be used with both an existential and a universal interpretation and, if not, why not. In fact, and it has been remarked upon in most discussions of 'until', an existential interpretation is not only not possible but the sentence type with an 'until' adverbial which would be the counterpart of an existentially interpretable sentence with a 'since' adverbial is unacceptable. That is, an 'until' adverbial cannot occur when the sentence is understood as describing a non-iterated

bounded situation.[1] Thus, whereas 215.a. can sustain both universal and existential interpretations and 215.b. is acceptable and interpreted existentially, 216.a. has only a universal interpretation and 216.b. is unacceptable:

215. a. John has been ill since Christmas

b. John has changed his mind since Christmas

216. a. John was ill until Christmas

b. *John changed his mind until Christmas

However, as noted by Leech and others, if a negative is inserted into a sentence describing a bounded situation, then an 'until' adverbial may occur, as in 217. We shall have more to say below

217. John did not change his mind until Christmas

about this sentence type, which, for reasons which should not be too obscure, we will refer to as the negative-existential use of 'until'. The point we wish to make here is that this difference in behaviour between sentences with 'since' adverbials and those

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[1] The major exception to this statement are cases where the described event is a simple border-crossing, inceptive or cessative in nature. The possibility then arises (but not in all instances) of interpreting the 'until' expression as indicating the end-point of the interval throughout which lasts the locational relation which the border-crossing results in:

1. John lent me the book until Tuesday
2. The lake froze over until April
3. Mary fell asleep until the end of the lecture
4. Fred stopped talking until the room was quiet again

We have already noted that this interpretation is also possible with 'for' durational adverbials--cf. §7.7.

with 'until' adverbials is entirely unpredictable and unaccountable for given either of Leech's or Geis's characterizations of these adverbials since each assumes that the only difference between the two adverbials is which of the two limits of a temporal interval is overtly specified. It will be the aim of our investigation to demonstrate that the universal and negative-existential uses of 'until' adverbials can be related in a very simple and natural way, but that to do so requires us to abandon the kind of semantic characterizations given for 'until' by Leech and Geis. Most generally, we diverge in our treatment of 'until' from that of these latter by considering the inclusion of a "for the duration of a period" component in its semantic representation as inappropriate and misleading.

8.4.3 <u>The negative-existential use of 'until'</u>

Earlier discussions of 'until' have tended either to treat the universal interpretation as somehow basic, the negative-existential use then being regarded as a particular case, or to treat the universal and the negative-existential uses as distinct and perhaps unrelated (this, ironically, being the case in Horn's (1970) study, the only one in which there is a significant pre-occupation with the semantics of <u>both</u> uses). An example of the first approach, Klima (1964: 289) considers the sentences in 218. to 222. and

218. That man didn't get there this time until five o'clock

219. *That man got there this time until five o'clock

220. That man slept until five o'clock

221. *A guest arrived this time until five o'clock

222. Guests arrived this time until five o'clock

concludes: "The fact that the element neg provides a favourable environment for until then, in the same way as dó certain classes of verbs and certain types of nominal specification, is not surprising if we give negation, in such cases, the by no means counter-intuitive interpretation of specifying the absence of what is predicated by the same sentence without neg. Simple absence would then also involve span of Time". In a similar vein, Fillmore (1969: 112) remarks: "A continuing activity, or state, necessarily occupies a span of time, and thus it makes sense to qualify a continuative verb with a complement which identifies one or both of the end-points of such a span, or a distance-measure of the span... the negation of a momentary verb can identify a continuing state...".

On the other hand, Leech (1969) appears to identify negative-existential 'until' with 'not...before' insofar as he equates sentences 223. and 224. below. Horn's (1970) presuppositional

223. I shan't sign the contract until next week

224. I shan't sign the contract before next week

analysis of 'until' also implicitly treats 'not...until' as the negative counterpart of 'before'. It will be worth our while to look at his proposals in detail in order to assess the legitimacy of this kind of analysis.

For a sentence such as 225., Horn claims that it asserts 226.

225. It won't start raining until Saturday

226. It won't start raining anytime earlier than (i.e. before) Saturday

and presupposes 227. However, granting the appropriateness of

227. It will be raining on Saturday[1]

such a presuppositional treatment, it would seem preferable to regard 228. below, rather than 227., as the presupposition of 225.

228. It will start raining on Saturday

227. would then be a straightforward implication from 228. But is it appropriate to be talking of presuppositions at all in this context, rather than simply of implications? Given the standard definition of logical presupposition, a sentence S' is presupposed by another sentence S if it is logically implied by both S and the negation of S (~S). Now, if 225. is taken as S, then 229. below

229. It is not the case that it won't start raining until Saturday

would be ~S. But 229. no longer implies 228. If, on the other hand, we identify 225. with ~S, then S presumably would have to be the unacceptable sentence in 230. Horn must be aware of this

230. *It will start raining until Saturday

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[1] Horn gives in parentheses after 227. the sentence in 1. below.

1. It will have started raining by Saturday

It is not at all clear what status he wishes to give to this alternative, but it clearly could be in contradiction with 226.

dilemma, but he slides over it by surreptitiously inviting the reader to accept 231. as the non-negative counterpart of 225.

231. It will start raining before Saturday

That is, 231. is to be taken as S and 225. as ~S in the determination of 228. as the presupposition of both. However, a bit of thought will quickly reveal that 231. does not imply 228. and, hence, cannot presuppose it: it may start to rain sometime before Saturday, say on Thursday, but not continue raining through to Saturday (i.e. it could stop raining on Friday). In such a case, 231. would be true but 228. not necessarily so. Moreover, 231. has its own, regular, negative counterpart 226. which again implies neither 227. nor 228. It seems safe to conclude, therefore, that it is incorrect to analyze either 227. or 228. as a presupposition of 225.

Part of the reason for both Leech's and Horn's confusion over 'not...until' and 'not...before' could be the fact that they both consider only sentences with modal auxiliaries. The semantic relationships become clearer if we confine our attention to examples of past tense sentences, where the element of modality is absent. Consider in this respect the sentences in 232. to 235.

232. It did not start raining until Saturday

233. It did not start raining before Saturday

234. It started raining before Saturday

235. It started raining on Saturday

Sentence 233. is clearly the negative counterpart of 234.--it could be used to assert the negative of the proposition expressed by

234. or, with stress on 'not', to deny 234. Furthermore, it is entailed by 232. but is not equivalent to it--cf. 236. and 237. That is, whereas 232. entails 235., 233 does not. In fact, the

236. As had been forecast, it didn't start raining before Saturday--in fact, it didn't start raining before/ until Monday of the next week

237. ? As had been forecast, it didn't start raining until Saturday--in fact, it didn't start raining before/ until Monday of the next week

conjunction of 233. and 235.--cf. 238.--entails 232. and, we would

238. It started raining on Saturday and not before (= It did not start raining before Saturday and/but it started raining on Saturday)

like to claim, can be appropriately viewed as a rough gloss of the semantic representation for such a sentence as 232. Postponing until later the details of an explicit characterization of the underlying structure, let us pursue, in the remainder of this section, some of the semantic and syntactic consequences of adopting such a 'conjunctional' analysis of the meaning of this negative-existential use of 'until'.

There are sentence types involving a negative-existential use of 'until' which are logically equivalent to the corresponding sentence type with 'not...before' in place of 'not...until' and others which are pragmatically, if not logically, equivalent to the corresponding sentence type with 'not...until' replaced by 'at'/'on'/'in'/'when'. These facts can be explained on the basis of an

underlying conjunctional source for 'not...until'. Let us look first at the case where a sentence with 'not...until' is logically equivalent to the corresponding sentence with 'not...before'. We could predict that this would be the case if the 'at'/'on'/'in'/'when' conjunct (henceforth simply the 'at' conjunct) is tautological (by the Identity Law P & T ≡ P). Consider in this light the following sets of sentences:

239. a. John didn't stop running towards the river until he had reached it

b. John didn't stop running towards the river before he had reached it

c. John stopped running towards the river when/at the time at which he had reached it

240. a. Mary didn't stop drawing the picture until she had finished it (i.e. finished drawing the picture)

b. Mary didn't stop drawing the picture before she had finished it

c. Mary stopped drawing the picture when she had finished it

Now, at the moment at which a moving object reaches a place (or, more generally, finishes a journey) it is at that place (the goal of the journey). Hence, it cannot, at that moment, be going towards that place. The finishing of a journey at time t_i entails the cessation at t_i of that journey and, in particular, of the directional process involved in that journey (cf. §6.2.2, §7.5.2). Thus, the c. sentences in 239. and 240. are tautological by virtue of the fact that their main clause is entailed by the 'when' clause.

Accordingly, if each of the a. sentences is logically equivalent to the conjunction of the corresponding b. and c. sentences, then the tautological nature of the c. sentences explains why each a. sentence is also logically equivalent to simply the b. sentence.

Consider now the opposite situation, exemplified by the following sets of sentences:

241. a. Sheryl didn't lose her virginity until her wedding night

b. Sheryl didn't lose her virginity before her wedding night

c. Sherly lost her virginity on her wedding night

242. a. The baby wasn't born until 5:00 the next morning

b. The baby wasn't born before 5:00 the next morning

c. The baby was born at 5:00 the next morning

As used to make statements about our actual world, 'lose one's virginity' and 'be born' denote unique, non-reversible and, hence, non-repeatable events. Because of this, if 241.c. and 242.c. are true, then it cannot be the case that there exists any other time at which Sheryl lost her virginity nor any other time at which the baby was born. In particular, there cannot be a time earlier than Sheryl's wedding night at which she lost her virginity nor a time before 5:00 of the morning in question at which the child was born. Hence, the a. sentence are not only logically equivalent to the conjunction of the corresponding b. and c. sentences, but the c. sentences alone, in a pragmatic sense at least, will entail the a. sentences. Given the conjunctional analysis of 'not...until', it

will be the 'not...before' conjunct which is redundant in the context of the 'at' conjunct.

Let us now turn our attention to one aspect of the syntactic behaviour of 'until' as used in a negative-existential context. What we wish to consider are the constraints on the 'deletion-under-identity' processes which might be postulated within a syntactic framework to account for the following sets of sentences:

243. a. John didn't leave until Bill left
b. John didn't leave until Bill did
c. *John didn't leave until Bill

244. a. John didn't leave before Bill left
b. John didn't leave before Bill did
c. John didn't leave before Bill

245. a. John left when/at the time at which Bill left
b. John left when/at the time at which Bill did
c. *John left when/at the time at which Bill

What must be accounted for is the fact that the structure underlying 243.a. can only be reduced to that underlying 243.b. whereas that underlying 244.a. can be reduced not only to that underlying 244.b. but also to that underlying 244.c. Geis (1970) suggests that such maximal reduction as illustrated in 244.c. is possible only in comparative structures. Furthermore, he argues that 'before' and 'after' are derived from underlying structures similar, if not identical, to those underlying 'earlier than' and 'later than', respectively, and that this would explain why such maximal reduction is possible in the case of these expressions.

Looking now at 243. and 245., we find that they display the same pattern as regards reduction. According to our proposal for the semantic analysis of negative-existential 'until', 243.a. and 246. would have very similar if not identical, underlying structures.

246. John left when Bill left and not before (= John didn't leave before Bill left and/but he left when/at the time at which Bill left)

Now, let us make the plausible assumption that one of the constraints on the lexicalization of "not...before & at" to 'not...until' is that, if reduction has taken place, it must be of the same kind in both conjuncts. Since the second conjunct can only be reduced in the minimal way (cf. 245.b.), the first conjunct must also be of this minimal kind. Accordingly, the postulation of the two conjuncts in the semantic structure of negative-existential 'until' sentences allows one to give a uniform account of the restrictions on reductions in both 'until' and 'when' clauses and, at the same time, to account for both the similarities and differences in the application of this process to 'until' and 'before' clauses.[1]

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[1] Such an analysis may also be able to account for Chomsky's (1972) problematic pair of sentences given in 1. and 2. below.

1. John won't leave until midnight, but Bill will

2. *Bill will leave until midnight

Although we find the acceptability of 1. rather dubious, if it is acceptable, as Chomsky claims, it presumably has the interpretation that John will leave at midnight, and not before (midnight), but that Bill will leave before (midnight). Thus, what has happened is that reduction has taken place on the third

(footnote continued over page)

(footnote cont'd from last page)

conjunct, with respect to the "not...before" conjunct--cf. 3. and 4. below--before lexicalization to 'not...until' takes place.

3. John won't leave before midnight but Bill will leave before midnight

4. John won't leave before midnight but Bill will

In a somewhat more speculative key, we would suggest that there is another aspect of the syntactic behaviour of 'not... until' which the conjunctional analysis could help explain. This involves the postulated rule of 'negative-raising' (cf. Seuren, 1974a, for discussion and references) which 'raises' the negative from the propositional/sentential structure underlying the 'that' clause in a sentence such as 1.a. below to that underlying the main clause, the resulting structure being realized as 247.b. What is peculiar about sentences involving

1. a. Fred {thinks / believes} that John will not arrive on time

b. Fred doesn't {think / believe} that John will arrive on time

a negative-existential use of 'until'--in which case the presence of a negative element is obligatory--is that there appears to be two dialects, one in which negative raising can apply to the negative element and one in which it cannot. That is, speakers will disagree as to the acceptability of 2.b. below:

2. a. Fred {thinks / believes} that John won't arrive until midnight

b. Fred doesn't {think / believe} that John will arrive until midnight

Now, negative-raising cannot take place in cases where the negative is located in only one conjunct of a conjoined structure--there is no reading of 3.b. below which is equivalent to the interpretation of 3.a. If we assume that 'not...until' is the result of the

3. a. Fred thinks that John will get scared and not wait for us

b. Fred doesn't think that John will get scared and wait for us

lexicalization of "not...before & at", which process destroys the conjoined structure, then the two dialects could be distinguished with respect to the order in which the two processes of lexicalization of 'until' and negative-raising occur. If negative-raising occurs before lexicalization, then the former will be blocked by the presence of the conjoined structure; if negative-raising occurs after lexicalization, it will be able to apply since the negative is no longer within a conjoined structure.

8.4.4 <u>The universal use of 'until'</u>

In this section we will argue that the universal interpretation of 'until' adverbials--as already exemplified in 209. and 216.a. above--also involves, in its semantic characterization, a conjunction of two distinct temporal propositions. More precisely, we shall claim that a sentence such as 247. entails not only 248. but also 249. and that the conjunction of 248. and 249. entails 247.

247. Shaun was asleep (from noon) until 4:00

248. Shaun was asleep at all times prior to 4:00 (and subsequent to noon)

249. Shaun was not asleep at 4:00

Thus, whereas the negative-existential use of 'until' can be glossed as "(the event X takes place) at no time prior to (t_a) and (the event X takes place) at (t_a)" (the term 'negative-existential' referring to the nature of the quantified temporal locative in the first conjunct), the universal use can be glossed as "(the state/process X is in existence) at all times prior to (t_a) and (the state/process X is) not (in existence) at (t_a)" (the term 'universal' again referring to the nature of the temporal quantification in the first conjunct).

Various kinds of evidence, similar in nature to those adduced in the preceding section, can be brought forward in support of a conjunctional analysis of universal 'until' adverbials. For example, the presence of the second conjunct ("not (in existence) at") is responsible for the deviancy of the a. sentences, compared to the b. sentences, in 250. and 251. below.

250. a. *John was irritable until he had solved the crossword puzzle and he remained so for the rest of the afternoon

b. John was irritable all the while before he had solved the crossword puzzle and he remained so for the rest of the afternoon

251. a. *Mary was in good humour until her ex-husband arrived and she continued to be for the rest of the evening

b. Mary was in good humour all the while before her ex-husband arrived and she continued to be for the rest of the evening

Consider also the bizarre flavour of such sentences as 252. to 254. What is strange about these sentences is that they merely

252. ?John was asleep until (the time at which) he woke up

253. ?John was here until (the time at which) he left

254. ?John was working until (the time at which) he stopped working

tell us that a particular state or process was in existence and ceased to be in existence, in that order. The 'until' clause apparently fails to give any temporal specification whatsoever of the duration of the situation described in the main clause. The semi-tautological, semantically empty nature of these sentences is entirely predictable and explicable within the framework we have developed in Chapter 7, given the proposed conjunctional analysis for 'until'. To take the most general case, let us consider the conjunctional paraphrase of 254. which, we suggest, is that given

in 255. Both conjuncts presuppose the existence of a unique

255. ?John was working at all times before the time at which he stopped working and John was not working at the time at which he stopped working

(relative to the context) time, say t_i, at which John stopped working. Now, given our analysis of the derived semantic predicate out of E( ) underlying 'stop', a yet more analytic paraphrase of the second conjunct of 255. would be that in 256. Even in this

256. At the time, t_i, such that at the time immediately preceding t_i John was working and at t_i John was not working, John was not working

informal format, the source of the tautology is obvious: what is asserted is entailed by what is presupposed.

The situation is somewhat more complex in the case of the first conjunct of 255. If there is no contextual specification, implicit or explicit, of a time at which John began to work, then 254. and the first conjunct of 255. will be semantically informative--over and above the presupposed existence of a time at which John stopped working--to the extent that it will be implied that John had never, previous to t_i, not been working. On the other hand, if a beginning point for John's working is retrievable from the context as, for example, would be the case if 252. were prefaced by 257., then a tautology will result in the following

257. John began working at 9:00

way.[1] The presupposition of a unique time at which John stopped working following the contextually specified time at which he began working implies the non-existence of any time within that span of time (i.e. after the time at which he began and before t_1) at which John stopped working. That is, there will be no pair of successive times such that at the first John was working and at the second John wasn't working. From this it follows that there can be no time within the time span involved at which it is not the case that John is working. Hence, what is asserted by the first conjunct of 255. will likewise be entailed by what it presupposes.

Without going into the details, we may also note, in conclusion, that a similar kind of argumentation could be invoked to account for the logical equivalences between the members of each of the following sets of sentences:

258. a. John fell asleep at 5:00 and was asleep until midnight

b. John fell asleep at 5:00 and didn't wake up until midnight

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[1] Note that we could compound the bizarreness of 252. by adding a 'from' phrase which involves another tautology of the same type--cf. 1 below. This is in contrast to such a perfectly acceptable and informative sentence as 2. below.

1. John was working from the time at which he began working until the time at which he stopped working

2. John was grouchy from the time at which he began working until the time at which he stopped working

c. John fell asleep at 5:00 and remained asleep until midnight

259. a. John arrived at 5:00 and was here until midnight

b. John arrived at 5:00 and didn't leave until midnight

c. John arrived at 5:00 and stayed until midnight

260. a. John began working at 5:00 and was working until midnight

b. John began working at 5:00 and didn't stop working until midnight

c. John began working at 5:00 and continued working until midnight

Here, the prediction that these sentences will be logically equivalent depends upon the appropriateness of the conjunctional analysis for both the universal and the negative-existential uses of 'until'.

8.4.5 The semantic representation of 'until' adverbials

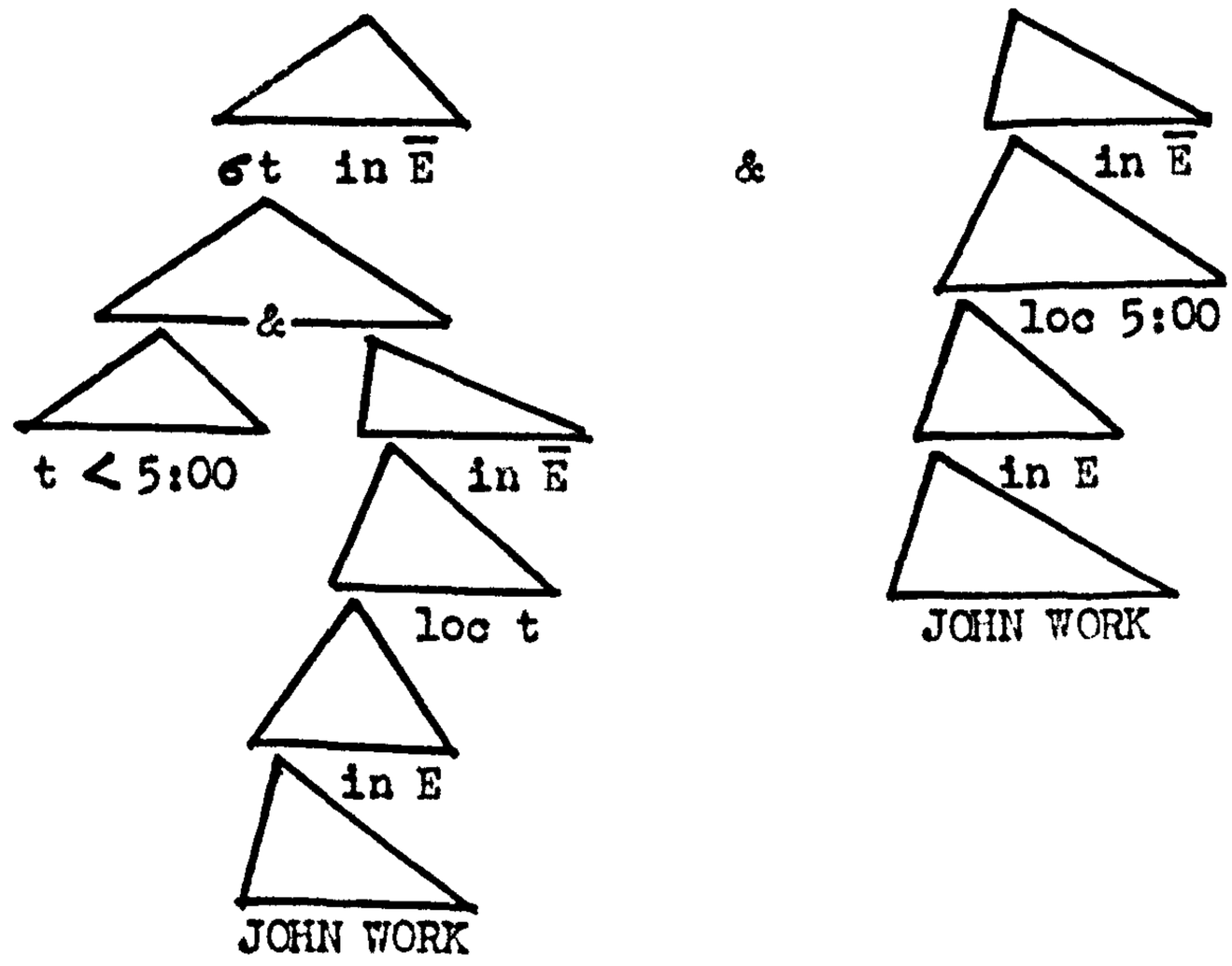
So far we have motivated for each of the two uses of 'until' distinct semantic analyses in terms of conjoined structures, the first conjunct of each involving quantification with respect to times prior to the time identified by the clause or temporal noun phrase following 'until'. We would now like to formalize these characterizations and thereby demonstrate that they have more in common than simply their conjunctional structure. Let us consider the semantic representations for sentences 261. and 262.

261. John was working until 5:00

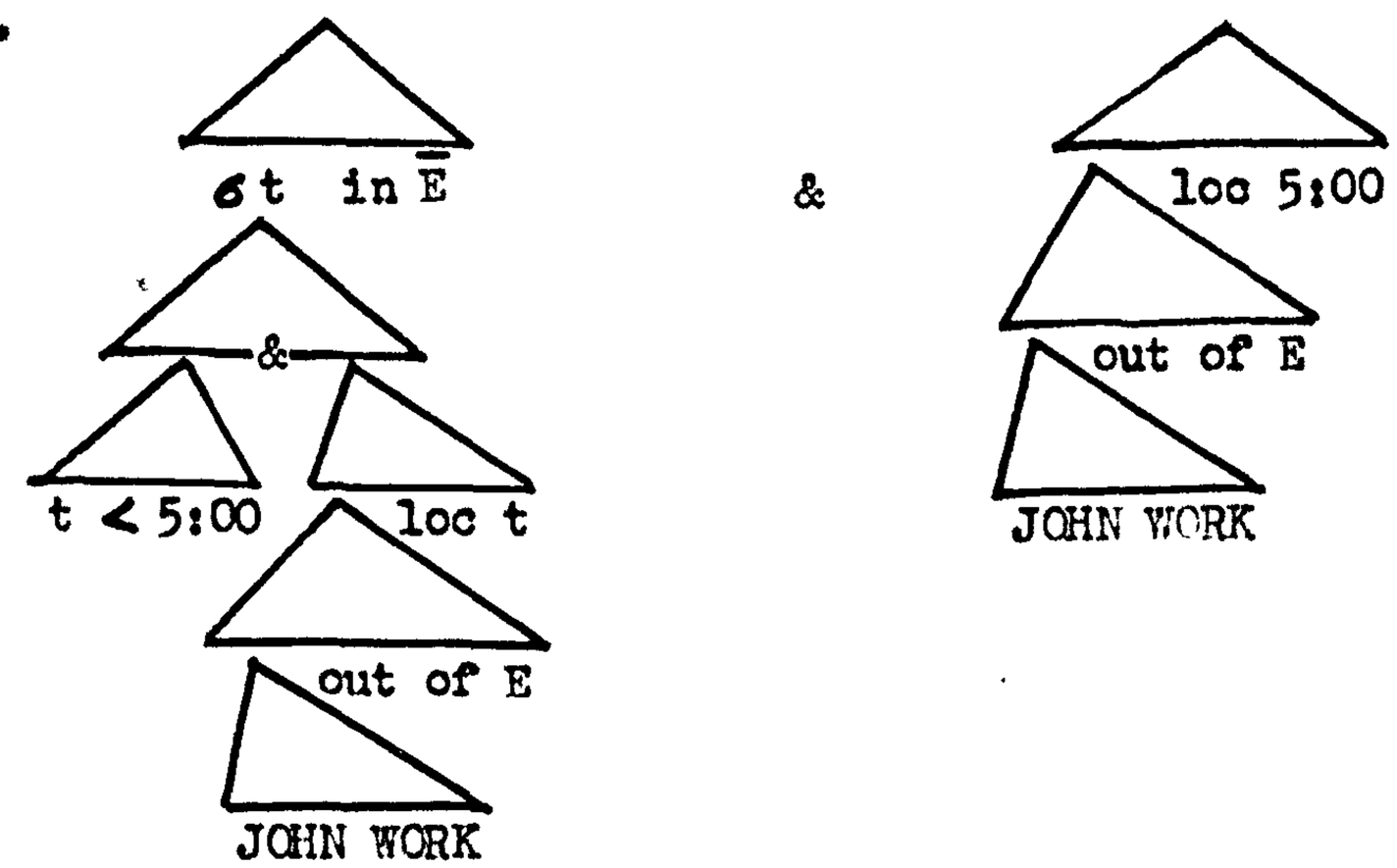
262. John didn't stop working until 5:00

within our descriptive framework. Sentence 261. will be represented as 263. and 262. as 264.:

263.



264.



We will make the standard assumption that <u>in $\overline{E}$(loc t(in E(X)))</u> is

logically equivalent to loc t(in $\overline{E}$(in E(X)))[1] This will enable us to propose 265. as a logically equivalent alternative for 263. A comparison of 265. with 264. now reveals a striking parallelism

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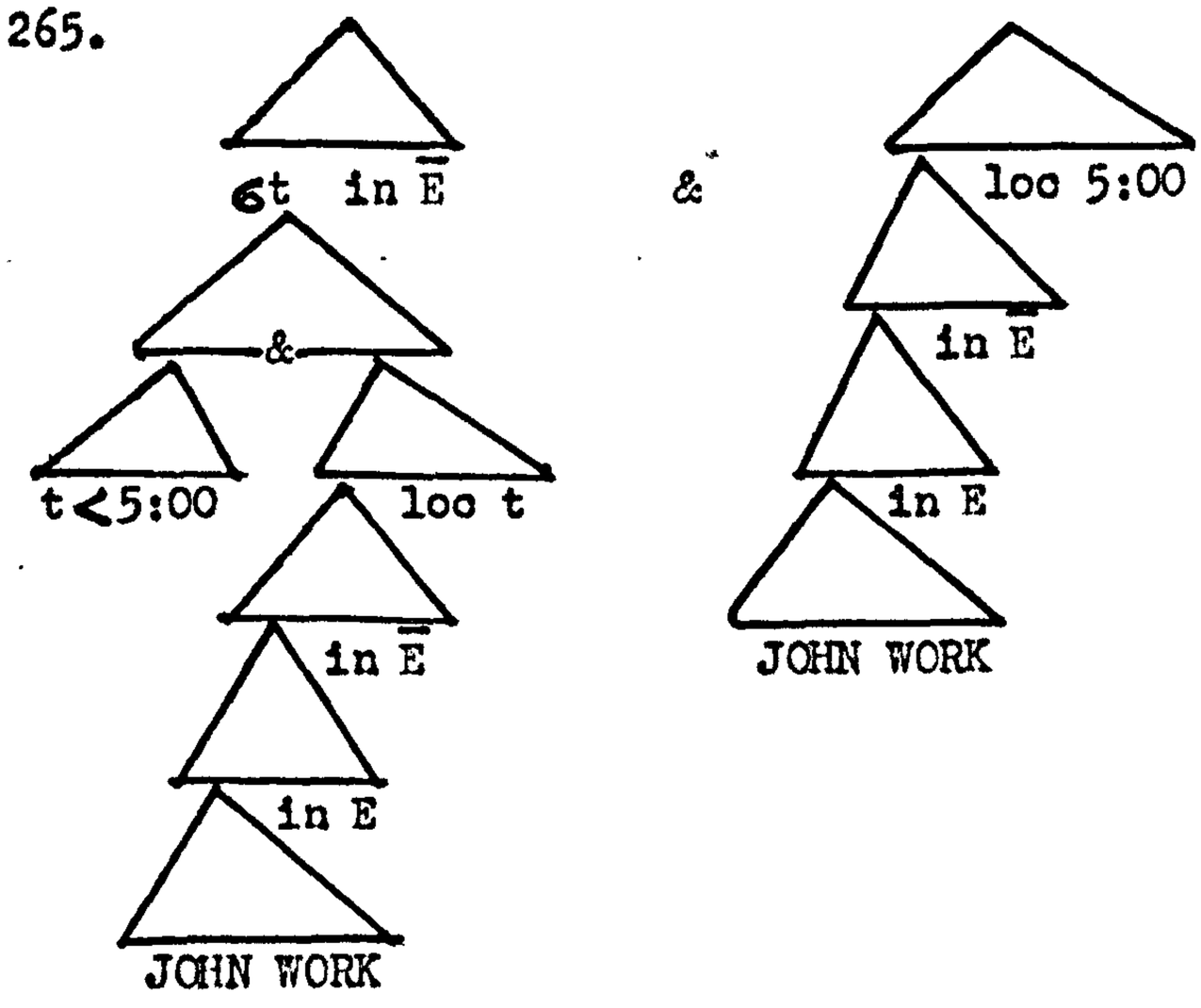
[1] This equivalence serves as an axiom in a family of logical systems, called positional or topdlogical logics, which include some temporal and tense logics. Such systems "have a very general nature, capable of reflecting the characteristics of a wide range of logical systems, including not only temporal logic, but also what may be called a locative or place logic, and even a logic of "possible worlds"" (Rescher & Urquhart, 1971: 12). In addition to a system of standard propositional logic, a topological logic has "the parametrized operator P, where "Pα(p)" is to be read and understood as "the proposition p is realized at the position α"... Regardless of the specific interpretation given the P-operator, the following two basic axiom schemata obtain:

$$P\alpha(\sim A) \equiv \sim p\,\alpha(A) \qquad (P1)$$

$$P\alpha\,(A \,\&\, B) \equiv \left[P\alpha(A) \,\&\, P\alpha(B)\right] \qquad (P2)$$

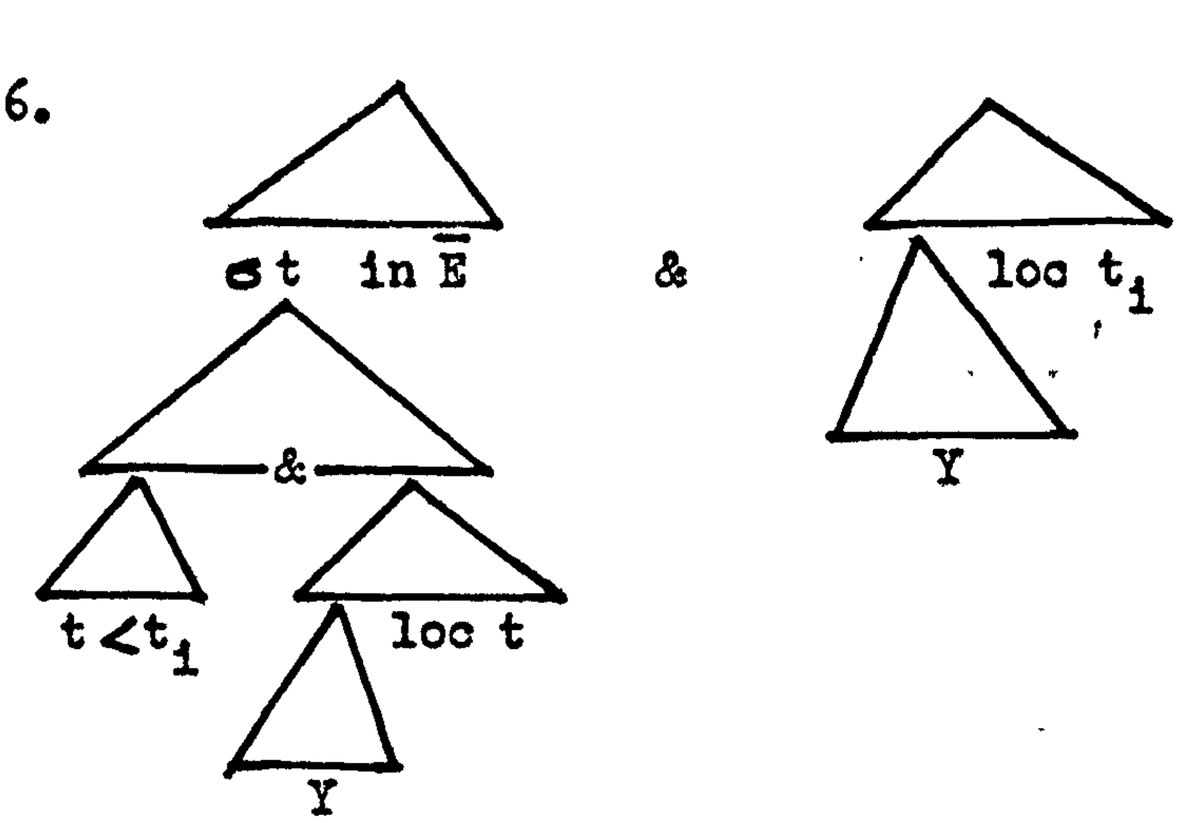
The axiom (P1) asserts that if not-p obtains at some position, then it is not the case that p obtains at that position, and conversely. This axiom schema embodies a decision to construct topological logic from a two-valued point of view: the (positionally indefinite) propositions at issue are to be either true or else false at any given position...." (ibid.: 13-4). Pα(p) would be translatable as loc α(in E(p)) within our framework.

265.



between the two interpretations of 'until'. Common to the semantic representation of both is the structure schematized in 266. It will be the existential structure of Y which will

266.



determine whether a negative-existential or a universal interpretation is involved: if Y is <u>in E (X)</u>, <u>into E(X)</u> or <u>out of E(X)</u> then a negative-existential interpretation is involved; if Y is <u>in $\overline{E}$ (X)</u>, then a universal interpretation is involved. Hence, if anything, it is the universal interpretation which is a special case of the

negative-existential use and not the reverse. However, we would prefer to regard 'until' in sentences where it is understood universally as having incorporated the two negative elements in the semantic representation (cf. 'all', 'still', 'already') and 'until' in contexts where it is understood (negative-)existentially as having incorporated no negative elements, the one negative required in the underlying structure being overtly realized as 'not' (cf. 'any', 'any longer', 'yet').

To conclude our discussion of 'until' we will illustrate how the semantic structure we have postulated for it can clarify an interesting and rather subtle phenomenon whereby a sentence containing an 'until' adverbial can be given two logically equivalent interpretations--one in which 'until' is interpreted universally and one in which it is interpreted (negative-)existentially--and, what is more, each interpretation (i.e. the corresponding underlying structures) has different syntactic consequences. A sentence which illustrates this peculiarity is 267. below. It can be given a universal interpretation more or less equivalent to that

267. John was not aware (of the fact) that Fred was really out to destroy him until it was too late

of 268. Or, it can be construed in a negative-existential way,

268. John was unaware/unconscious of the fact that Fred was really out to destroy him until it was too late

in which case its semantic representation would be very similar to that of 269. If we now turn our attention to the syntactic

269. John did not become aware (of the fact) that Fred was really out to destroy him until it was too late

process whereby temporal adverbials are preposed to sentence-initial position, we find that in sentences with 'until' in a negative-existential context, the negative must be preposed as well and subject-verb inversion must take place in the main clause (this also being the case with 'any longer' and 'yet'). Universally-construed 'until' is fronted with no accompanying subject-verb inversion. Accordingly, each of 268. and 269. has only one possible variant involving preposing--cf. 270. and 271. In the

270. a. Until it was too late, John was unaware of the fact that Fred was really out to destroy him
b. *Until it was too late was John unaware of the fact that Fred was really out to destroy him

271. a. *Until it was too late, John did not become aware of the fact that Fred was really out to destroy him
b. Not until it was too late did John become aware of the fact that Fred was really out to destroy him

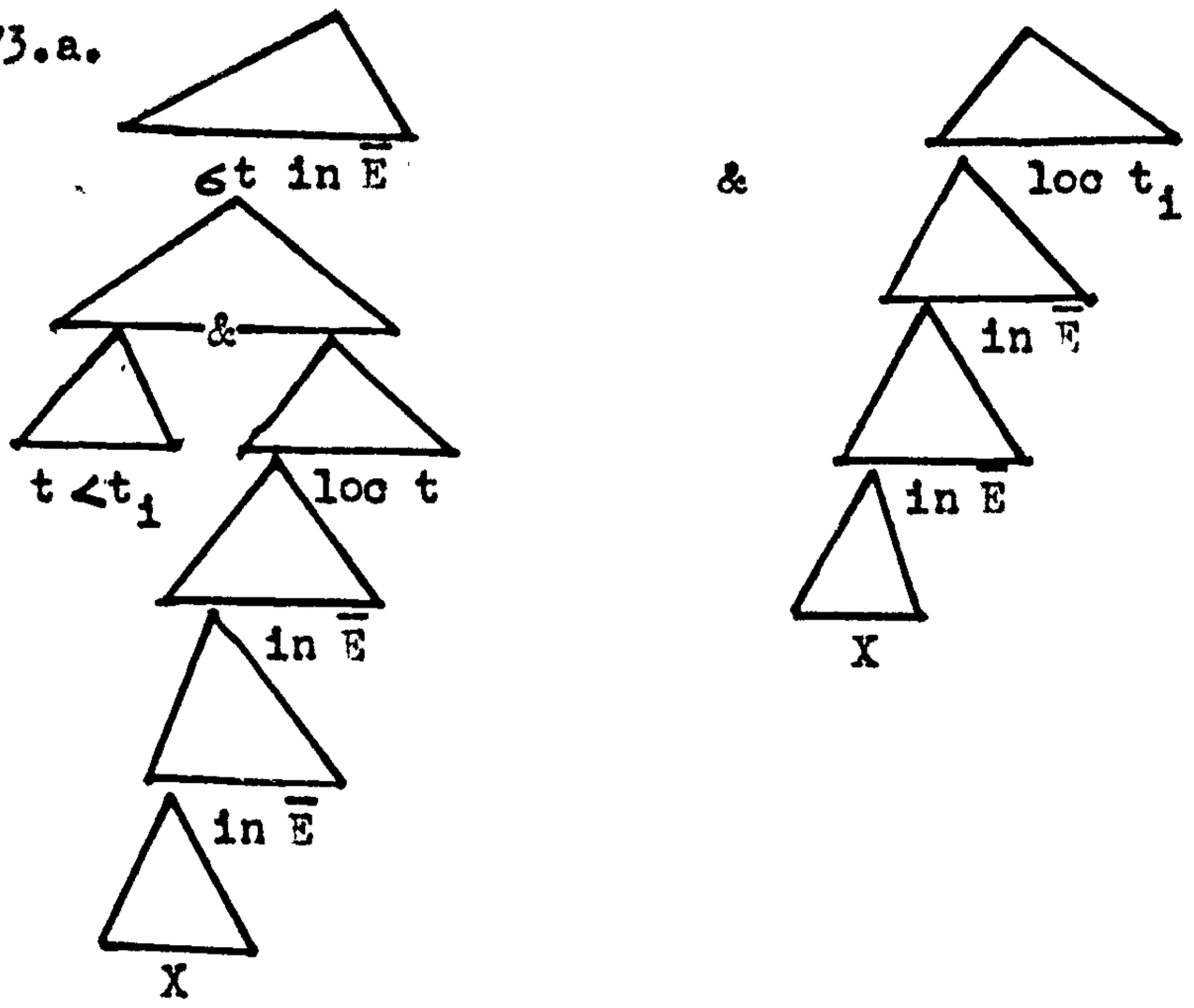
case of 267., however, both kinds of preposing are possible, this reflecting the two distinct possibilities for its underlying structure:

272. a. Until it was too late, John was not aware of the fact that Fred was really out to destroy him
b. Not until it was too late was John aware of the fact that Fred was really out to destroy him

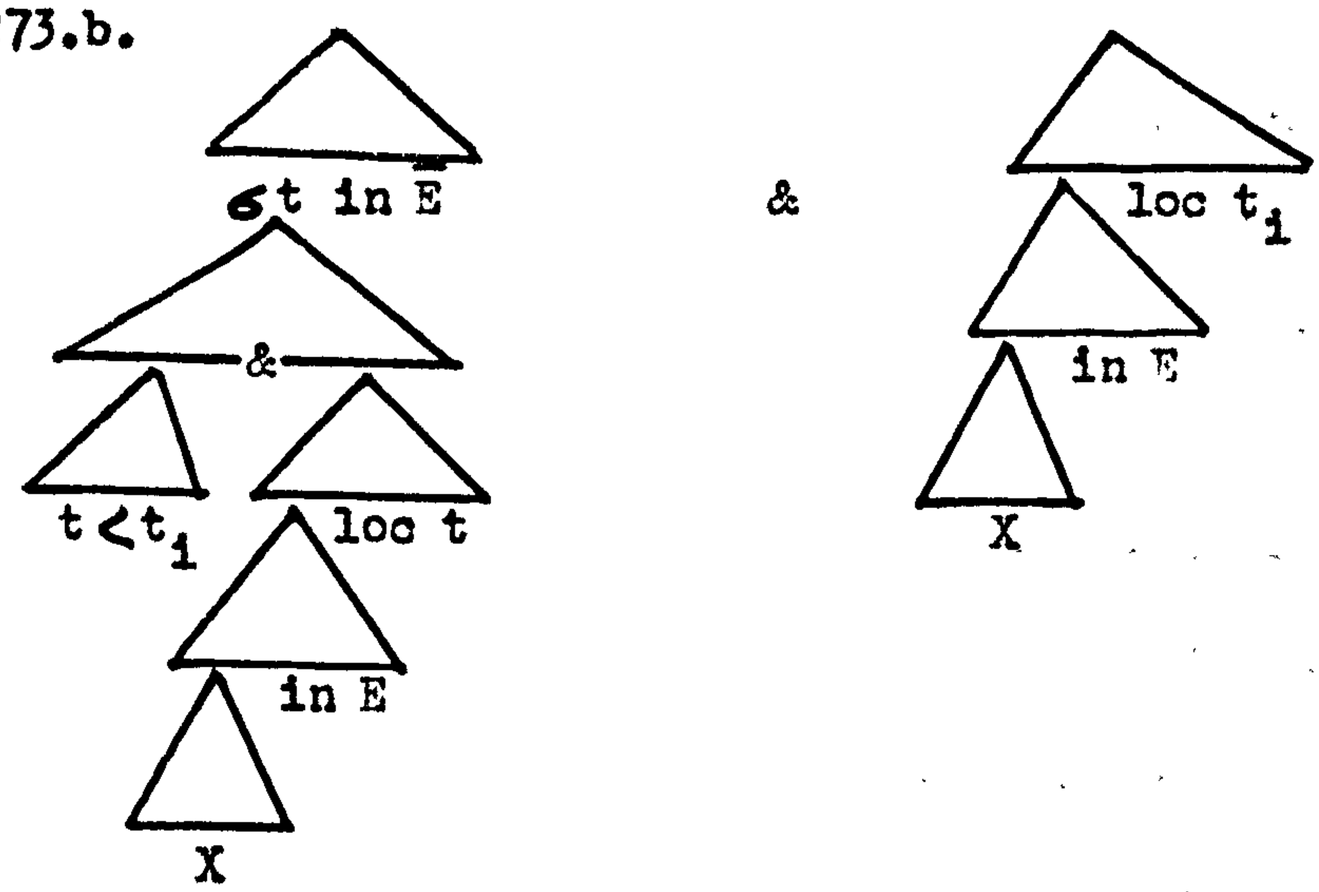
Sentence 272.a. will be understood universally (the main clause

expressing a negative proposition), 272.b. negative-existentially (the main clause expressing a positive proposition). Letting X stand for "John be aware of the fact that Fred was really out to destroy him", the two semantic representations for 267. would be those in 273.a. and 273.b., universal and (negative-)existential respectively. The two successive <u>in E</u>'s above X will cancel each

273.a.



273.b.



other, making 273.a. logically equivalent to 273.b.

IX

CONCLUSIONS

The range of linguistic phenomena surveyed and investigated in this study constitutes an exceptionally fascinating, challenging and instructive area for semantic analysis. Our efforts have been directed towards motivating a descriptive framework capable of accounting for, in an explicit fashion, various kinds of semantic properties and relations displayed by expressions structuring the two closely related and interdependent semantic domains of space and time. The following is a brief recapitulation of the more important and interesting findings of the study.

In general, we hope to have demonstrated the need, in the semantic analysis of individual expressions or sets of expressions, to constantly take into consideration the context--in particular, the intra-sentential context--in which these expressions occur. The isolation of the pertinent contextual factors followed by a detailed and comprehensive examination of their interaction was found to result in simpler and more accurate descriptions of the meanings of the individual spatial, temporal and aspectual expressions with which we dealt. An important dimension of the interaction of contextual factors within the sentence was seen to be the configurational definition of the various types of propositions (according to their temporal-existential structure) which a sentence may express. It was only in terms of such complex, essentially covert categories that many semantic facts, such as those concerning co-occurrence and interpretation potential, could be explained.

Related to this has been the desirability of establishing semantic representations of (the relevant aspects of) whole sentences. Only by so doing could the range of semantic relations and properties

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under investigation be explicitly accounted for--that is, be predictable solely on the basis of properties of such semantic representations and basic axioms of the system. However, to establish semantic representations for whole sentences often requires one to take into account, in a rudimentary way at least, the semantics of linguistic elements which may be or appear to be peripheral to one's main concern. This was the case with such fac ts of linguistic structure as negation, quantification and proposition type. However, what we found was that these elements and configurations not only play a crucial role within the semantic domains we were focussing on, but also that, in principle, they could be integrated and interpreted within our descriptive framework in a straightforward and intuitively satisfying way.

More particularly, then, we have seen that the notion of existential status carries an exceptionally high and diversified functional load in the semantic description of this central area of English. A wide range of aspectual phenomena (using the term 'aspectual' in its broadest sense), as well as negation and quantification, can be given a uniform and insightful treatment in terms of the very small set of basic and derived existential predicates <u>in E</u>, <u>in $\overline{E}$</u>, <u>into E</u> and <u>out of E</u>. Of especial relevance to the analysis of temporal expressions is the role these predicates play in mediating the linguistic mapping of situations (states, events, processes, etc.) onto the time axis--that is, in explicating the semantic functions of temporal adverbials (and tenses). Moreover, these existential predicates play an analogous mediating role in the semantic description of expressions of physical extent. In other words, these predicates are the common denominator as regards

the specification of boundaries and extensions of objects in space and of situations in time and space. The beginning and end points of a (linear) physical object are the points at which it comes into existence and goes out of existence, respectively; its extension or length is (the measure of) the set of points at which it is in existence. Similarly, the beginning and and of a situation in time (which is conceptualized linguistically as one-dimensional) are the points in time at which it comes into existence and goes out of existence, respectively; its extension or duration is, again, the set of points at which it is in existence. The property of boundedness, both with respect to objects and with respect to situations, is therefore semantically characterizable in terms of the possession by the object or situation of inherent points at which it comes into existence and at which it goes out of existence. A particularly important class of bounded situations are those we have called journeys.

However, <u>in E</u> and <u>in $\bar{E}$</u>, and derivatively <u>into E</u> and <u>out of E</u>, are themselves analyzable as abstractions from the notion of location in space (and time); and it was with those expressions whose meanings involve the most concrete instances of locational relations --spatial adverbials of place and orientation (order, static direction)--that we began our investigation. We found that the basic constructs of simple location and order have both temporal analogues (location on the time axis--at a point or in an interval--and temporal succession) and abstract manifestations (states, properties, conditions, class membership, inclinations, tendencies, etc.). However, the explicit characterization of the more complex spatial constructs --that is, movement towards (dynamic direction), border-crossings,

extended journeys (all of these again having both concrete and abstract manifestations)--involves various orderings in time of the existence, non-existence, coming into existence and/or going out of existence of one or more basic locational relations. It was the unravelling of these rather intricate relationships and dependencies within the semantic systems of space, time and existence that ultimately led to the establishment of a localist classification and characterization of proposition types.

Finally, our investigation of spatial adverbials also revealed the importance of the intrinsic orientational properties of the speaker/observer and the principles of canonical position and encounter and of egocentric and anthropocentric extension in characterizing the meanings of these expressions and, in particular, in accounting for their interpretation and use in specific contexts. These principles, in conjunction with the localist hypothesis, represent components of a theory of language structure which need not seek an explanation for linguistic universals in terms of innate, language-specific categories and rules but rather which can relate them to shared features of the environments, physical and social, in which all languages operate and to more general universals of perceptual and conceptual categories, strategies and processes.

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